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Diseases *of the* Nervous System

A Practical Journal on Psychiatry and Neurology

(CONTENTS ON PAGE 416)

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Volume XXII AUGUST 1961 Number 8

DISEASES *of the* Nervous System

Contents

SUPERIORITY, SERVICE AND STANDARDS 423
Mathew Ross

THE CORPUS CALLOSUM 428
J. U. Toglia

THE CURRENT STATUS OF THE TRANQUILIZERS AND OF CHILD ANALYSIS IN CHILD PSYCHIATRY 434
Herbert Freed

JEALOUSY AS A MOTIVE IN HOMICIDE 438
Edward Podolsky

ON A SPECIFIC TYPE: "THE APPROVAL-HUNGRY" NEUROTIC 441
Edmund Bergler

THE USE OF DELTA I, 17 ALPHA METHYL TESTOSTERONE AS AN ADJUVANT IN THE TREATMENT OF SCHIZOPHRENIC REACTIONS 443
Leonard I. Lapinsohn

ANTIDEPRESSIVE DRUGS IN THE TREATMENT OF DEPRESSION 449
Pedro Polonio

ETRYPTAMINE, A NEW AND SAFER ANTIDEPRESSANT CHEMICAL 452
Theodore R. Robie

USES AND ABUSES OF TRANQUILIZERS IN CHRONIC ILLNESS 457
John L. Otto

GROUP THERAPY WITH LSD-25 459
Bertrand Tenenbaum

IATROCHEMISTRY, IATROPHYSICS AND IATROPSYCHOLOGY 463
Jerome M. Schneck

PHENYLPYRUVIC OLIGOPHRENIA 465
Fernando Tapia

PSYCHIATRY IN ISRAEL 467
Louis Miller

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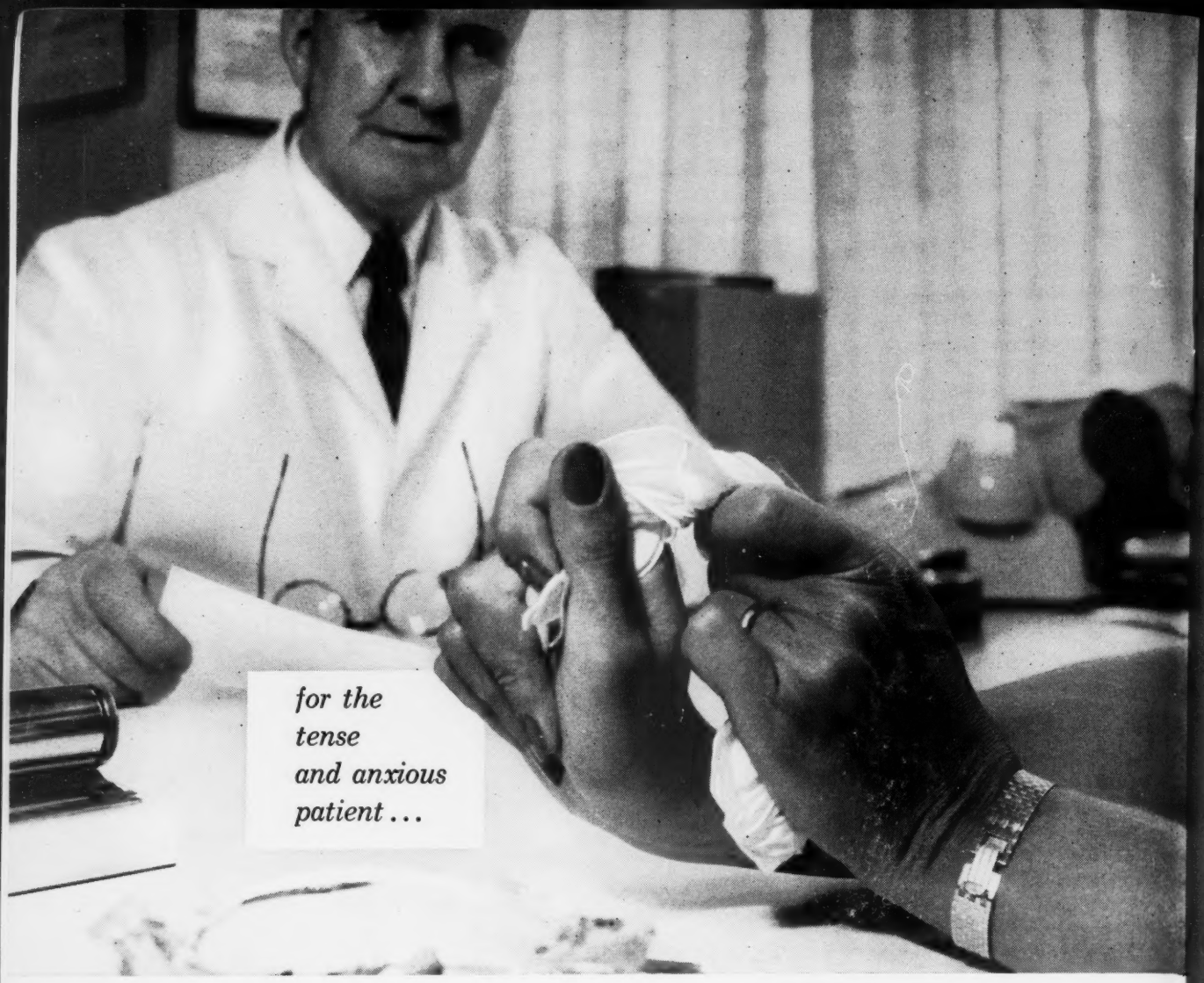

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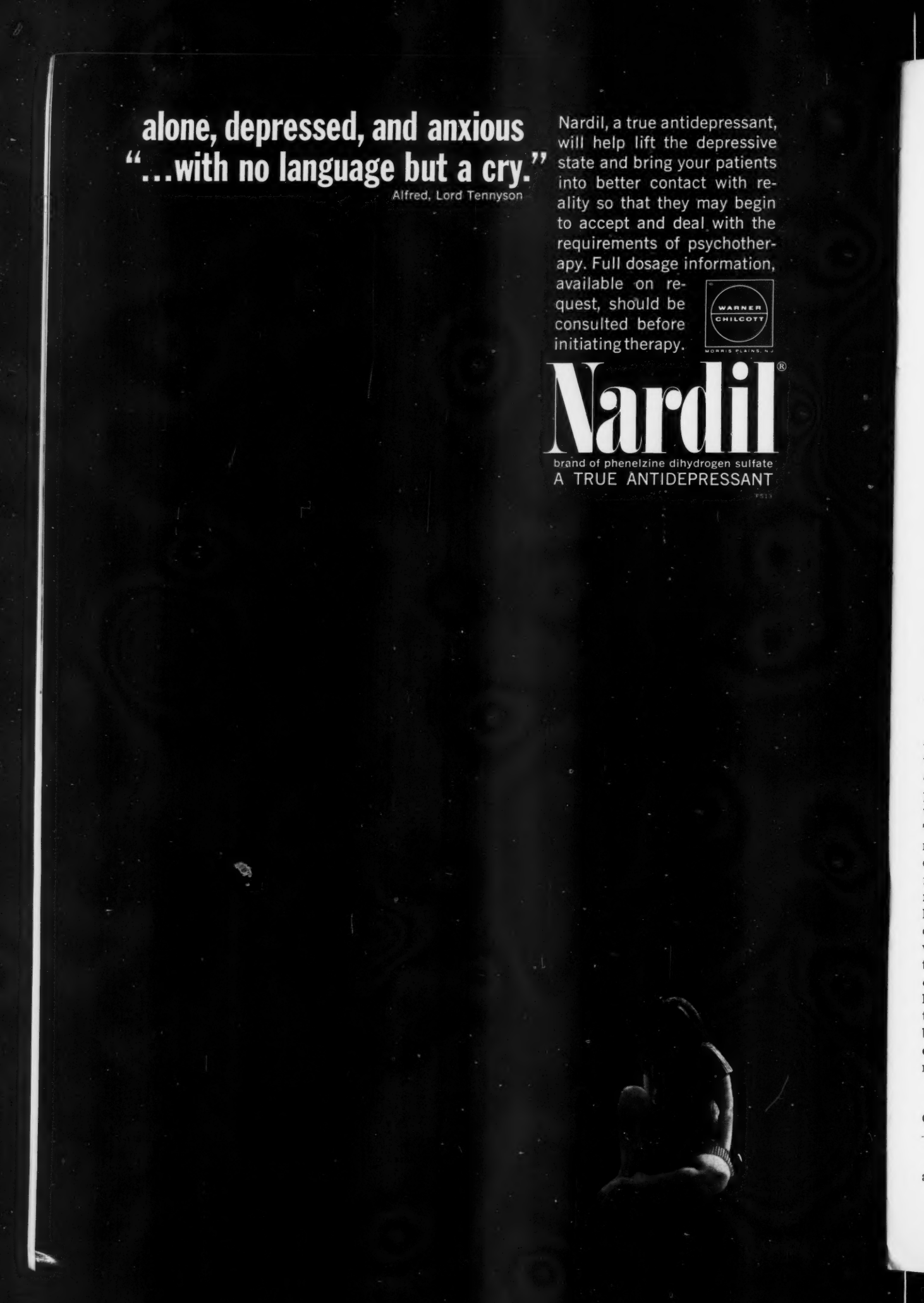
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DISEASES *of the* Nervous System

A PRACTICAL JOURNAL ON PSYCHIATRY AND NEUROLOGY

Superiority, Service and Standards

MATHEW ROSS, M.D.

Psychiatry has embarked on an era of enthusiastic, optimistic, and bold experimentation such as would have staggered our imaginations ten or fifteen years ago. The evidence is legion, coming from all states. This wave of optimism that has seized psychiatry affects our language, our outlook, our planning priorities, our work habits, our hopes and expectations. For example, consider a few cases in point:

This summer a document from Drs. Granville Jones and Hayden Donahue in Arkansas appeared, entitled, "A Mental Illness Control Program: Planning a Continuum of Care as It Relates to Health and Welfare Services." The authors open their formulation of a long-range program for Arkansas with this statement:

"We have, as a society, been advised by one of our leading contemporary historians that the twentieth century will not be remembered for its political crises or technical inventions, but rather as a period in which man actually began to take an interest in the problems and needs of his fellowmen. There are few areas of endeavor in which this statement may become more true than in the area of the care and treatment of the mentally ill. At long last man is beginning, actually, to accept mental illnesses as a truly medical and social problem and has, on a more or less world wide basis, begun to develop active humanitarian programs directed towards controlling this devastating force, a force that sooner or later incapacitates all human beings on a "one-out-of-one" ratio. . . . Those of us who have worked to bring better care and treatment to the metally ill feel that at last we have secured a beachhead—small though it may be—and that we can now begin to mount an all-out attack against mental illness as an over-all problem. . . ."

From Colorado, Dr. Franklin Ebaugh has expressed a similar thought in the September 26, 1959 issue of the *Journal of the American Medical Association* under the title "Mental Illness, Reversible and Irreversible":

"Throughout this paper I have expressed my own firm conviction that it is possible to manage our mental health problem with the serenity and consistency we achieve in many other areas and to accept it as an integrated part of our national life rather than relegating it to the isolated status of something we sporadically and helplessly worry about. . . . At one time, the mental hospital was a humane and enlightened concept in the treatment of mental illness, infinitely preferable to a prejudiced and destructive outside environment. Time and pioneering effort have altered this situation, until the dynamic community has become a vast untapped therapeutic resource. The moment has come, therefore, *to reverse . . . what was previously irreversible.*"

Similarly, Dr. Daniel Blain propagated the general thesis that it is possible to avoid building more large public mental hospitals and lick the challenge of mental illness if we can erect sufficient lines of defense in the community.

A recent progress report on Massachusett's Mental Health Program, by Commissioner Harry Solomon, is replete with such phrases as:

"In the field of mental health a new era has arrived";

"At long last a breakthrough has occurred";

"We can prophesy an even better outlook than we now have";

"It is not a wild speculation that with increased staffing there will be great acceleration in obtaining patient improvement."

The Georgia Psychiatric Association is combining forces with the Medical Society, the Mental Health Association, the Governor, and anyone else who will help, to "put Georgia back on the road to mental health"

Medical Director, American Psychiatric Assn.

Presented at Southern Psychiatric Assn. meeting at Virginia Beach, Va., October 2, 1960.

as they express it. In Alabama work has been carried out to develop a new and comprehensive mental health program for that state. We will find the same kind of optimistic outlook in the formulations of Dr. Addison Duval in Missouri, and of Dr. Harold McPheeters in Kentucky, and undoubtedly all of the other states.

Hercules in tidying up the Aegean stables, Paul Bunyan as he moved his mountains, and Houdini in escaping from his most hopeless incarceration, had nothing on psychiatry today. In the large public mental hospitals themselves we find perhaps an even more poignant example of what some might call incurable optimism. Saddled with enormous physical plants housing from 1500 to 12,000 patients, they are setting forth with bold administrative schemes which will break down their behemoths into several smaller administrative units that will offer many of the advantages of the small hospital. This is happening, for example, at Pilgrim State Hospital, the largest in the world. It is happening in Iowa where the hospital at Clarinda is now organized around county administrative units.

Fascinating also is the language that sprouts up to express the spirit, the concept, and the coloration of this wave of the future:

Blain and Ebaugh like to speak of "zones" in the community. Ebaugh talks about reactivating a "dead zone" which he describes as "a vast area of untapped resources where, as in the eye of a hurricane, the sound does not penetrate and the spark of action remains unstruck." It is only by restoring life to this dead zone in the community we can, he asserts categorically, "reverse the previously irreversible," that is, reverse both the course of a patient's mental illness itself and the limitations of society's attitude towards it.

Jones and Donahue refer to their conception as a "continuum of mental health services" that will encompass the fields of prevention, treatment, and rehabilitation. They divide their continuum into what they call "perimeters of defense." All of the perimeters revolve around the nucleus of a state mental health center. The outer perimeter, for example, is made up of ministers, teachers, public health nurses, social workers, police, parole officers, and such gatekeepers in the community. Then there is a perimeter for family physicians, psychiatrists in private practice, out-patient facilities, etc. At the nucleus, the State Mental Health Center serves as the training, research, administrative and coordinating agency for the continuum.

It would have been inconceivable to talk in such terms ten years ago. How has this precipitous transformation come about? Surely it must mean that sociologically there has been a drastic cultural change. Prejudice against our cause is certainly still with us, but it must be that through our own efforts and with the help of countless lay leaders, we have prejudice on the run. At any rate we can now talk freely about open hospitals in most communities without creating hysteria. Possibly our sense of economy as a people, whetted by life and death competition with communist societies, has finally awakened us to the fact that we can no longer afford to ignore action to counter the cost of sustaining a load of perhaps 2,000,000 mentally sick people.

The other day I was rereading a report by a group working under the auspices of the Rockefeller Brothers Fund on the subject of the "pursuit of excellence" in relation to education and the future of America. They introduced the report with the following statement which I thought very much applied to us, and I quote:

> "The enthusiasm with which Americans plunge into projects for human betterment has been considered by some critics to be foolishly optimistic. But though we may have gone to extremes in a naive belief that we could cure all of mankind's ills, we need not be ashamed of the impulse. It springs from our deepest values. We do not believe that men were meant to live in degradation, and we are foes of the poverty and ignorance which produces that result. We deplore the destruction of human potentiality through disease, and we are prepared to fight such destruction wherever we meet it. . . . Our devotion to a free society can only be understood in terms of these values."

I commend this report to you because it deals with the pursuit of superior achievement and performance *for its own sake* as a primary force in the preservation of a free society. It spells out how a substantial part of the task entails ensuring that the members of the society are constantly exposed to a context of values in which high performance is encouraged.

The A.P.A. made a number of contributions to the progress of the 1950's. One thinks readily of several of them. There were, for example, the conferences on psychiatric education which did so much to encourage the establishment of workable and satisfactory patterns for the teaching of graduate and undergraduate psychiatry in training centers and medical schools. There was the development of the new nomenclature under A.P.A. auspices which, while always in need of revision, nevertheless brought order and system to an accrual of semantic confusion that had built up since pre-war days. Through the establishment of its Hospital Service and Institutes the Association established standards for mental hospitals which in their total effect underlay the single most important achievement of the 1950's, namely, the elimination of the abominable snake-pit conditions in our mental hospitals that had prevailed in the 1940's and before.

It is about these standards that I wish to devote the remainder of my remarks. They simply will not do for our march into the community in the 1960's. This is not my lone judgment. It is the judgment of the Committee on Standards and Policies of the Association, of the Council, and ever so many other leaders in the general and mental hospital field who have given the problem thought. About a year ago the Committee on Standards called together about a score of these leaders for a conference at the Central Office in Washington. The upshot of their conclusions was that the existing standards were either obsolete or obsolescent, and that no time should be lost in setting up a study project looking to their reformulation. That project has since been submitted as a grant application to the Public Health Service and before long we hope to hear that the National Institute of Mental Health, together with some private foundations, will give it full support.

In the last ten years we have been primarily concerned with *quantitative* factors underlying treatment and care in the hospitals. That is, we sought to eliminate overcrowding in the hospitals, to build up ratios of personnel to patients, to raise salaries, to establish minimum per diem rates. Now, it appears that in the decade ahead we must be more concerned with *qualitative* factors. If we are to change present concepts into reality, we need more than anything else, built-in self-criticism as we move along. If we are to extend our lines away from the hospital and into the far reaches of the community, it must be done in "pursuit of excellence."

How did our present standards for mental hospitals get started in the first place?

Standards are, of course, a stock device used by professional groups to insure and advance adequate levels of performance in the discharge of services that affect the public as a whole. In their broadest context they may have to do with weights and measures, the adulteration of food, licensure to practice medicine, or what will you. They are, in brief, a measure of adequacy and acceptability backed by professional authority. They develop in response to a social need.

Standards can also constitute a rallying point, a set of slogans, behind which public support can be rallied to advance a cause; and it seems fair to say that this function was the primary consideration in formulating A.P.A.'s standards following World War II.

It must be recalled that the standards of those days had to be geared to the most elementary realities. All aspects of mental hospital care were hopelessly inadequate. It was a matter of starting from scratch. Some hospitals were spending less than $1 per patient per day for treatment and care and astonishingly enough, it was not uncommon to hear a superintendent boast of turning some of this back to the state general fund at the end of a year. These standards had

to be "room and board" standards. Patients needed a little space where they could keep their clothing. They needed a bed with a mattress on it. They needed a little recreational space and some decent food, served warm. They needed to see a doctor and a social worker once in a while. These were the predominant concerns of the time.

Moreover the early standards—*and we are still using them*—had necessarily to reflect the current philosophy of treatment of the time. There was some talk in the late forties about community relations and out-patient clinics; but really it did not amount to much. It was not a time for idealism, for projections of what truly civilized treatment of mental illness might be like. It was a time for a hard-boiled approach. If the mental health disciplines recognized that a majority of patients would respond promptly to an intensive treatment program, they also recognized that for large numbers of patients, there was less expectancy of recovery, and that for this latter group prolonged treatment would be necessary. Thus it was reasoned, the larger part of our mental hospital effort should be concentrated on new admissions and for them, we said, there should be one doctor for every thirty patients. For the others, one doctor for 150 patients would do. Thus we distinguished between intensive treatment for some and what was so euphemistically called "continued treatment" for others.

It may be said that minimally acceptable levels of humane care have been achieved across the board and considerable headway has been made in providing honest-to-goodness treatment programs in our hospitals.

Hardly were the standards pronounced, however, when a number of developments were set in motion that took on substance during the fifties and soon led to the realization that the standards had their own obsolescence built into them. At the Conference a year ago, certain patterns of dissatisfaction with the standards were delineated and here are some of them.

The most common note of criticism is that the standards emphasize quantitative considerations at the expense of quality. Furthermore, they proceed from the assumption that more personnel *per se* will lead to more effective treatment. The qualities of personnel are overlooked. For example, hypothetically, might not a hospital that fails to meet the standard ratio of physicians-to-patients but whose physicians are all Board-certified be a better hospital than one which does meet the ratio but with less adequately trained personnel? Is it sufficient to insist on so many square feet of space per patient, or is there not need to assess how the space is being used and to look more deeply into matters of design and utility? Is it not the results that are obtained, rather than the numbers of personnel that count?

Another common dissatisfaction is that the standards no longer reflect our philosophy of treatment. Of course, when we are pinned down, we still have to admit that there are very large numbers of patients for whom we can still do relatively little. But our sights have been raised enormously as to how many patients we can reach if present available therapies are made available within and outside the hospital. And even in the case of chronic patients we are optimistic about making more useful citizens of them within the hospital and in protected settings outside. In short, we are rapidly approaching, if we have not already reached, a philosophy of *total treatment for all* instead of intensive treatment for some. The former philosophy tended to emphasize arithmetic deficiencies in operations, while the latter tends to confer credit on experimentation, improvisation, and built-in evaluation.

A third criticism is that once standards are established it is difficult to change them. They tend to petrify and to lose touch with the realities of changing opinion and practice. For example, the standards were promulgated before the advent of drug therapies. Yet these therapies have drastically affected the use of space and personnel in the mental hospitals. Still, no change has been made in the standards to reflect this. It is a matter of record that there are not enough nurses in the entire nation to staff the mental hospitals in the ratio required by

the standards. Only rarely will a hospital have more than a tenth or a twentieth of the number required. The deficiency, of course, is compensated for by building up staffs of aides and attendants. Is it not time that the standards came to grips with such a fundamental reality?

Another flaw in the standards, often expressed, is that they do not allow for evaluating the *variables* in the total effectiveness of individual hospitals. Why is it that some hospitals demonstrate greater therapeutic effectiveness than others? Is it because of superior personnel? Superior administrative techniques? Cultural differences in the patient population? The openness of the hospital? The activity programs? Or why? The standards do not help us to ascertain the relative importance of these factors. Moreover, they do not have across-the-board applicability to begin with. Certainly the measurement of performance of a large metropolitan hospital in Boston or New York is a vastly different proposition from assessing the effectiveness of a hospital in northern Idaho.

Another troublesome point about standards is that people do attain them. When that point is reached, their very existence becomes a handicap to further advance. Yet, it is not feasible to go on raising the standards every few years to accommodate the needs of those who have reached them. That would amount to nothing more than the old trick of dangling a carrot on a stick in front of the horse. It may work with a horse; but it will not work with a legislator.

Some have raised the question: should standards any longer be geared to accreditation purposes at all? Should we not think instead in terms of developing guide lines to acceptable patterns of operation for the entire range of psychiatric services in *both* the hospital *and* community? These then are the patterns of dissatisfaction that are commonly expressed. It adds up to a consensus that the standards which did so much for us in the fifties have now almost reached the point where they inhibit rather than encourage the development and application of new and promising trends and practices. Properly speaking, these standards never did have as their primary focus the pursuit of excellence; rather they pursued the more limited goal of providing minimum levels of decent treatment and humane custodial care. They will no longer meet the demands of the "continuum of service" projected by Donahue and Jones, of the reactivation of the "dead zone" described by Ebaugh, or of the zone defense in depth elaborated by Blain. They are not part of the wave of the future.

In summary, I have presented some indication of how long and how far we have proceeded from those ideas of 1773 when the Commonwealth of Virginia established its first public mental hospital based upon the philosophy that the mentally ill were untreatable and incurable, and therefore should be mercifully relegated to custodial institutions far from centers of population. Now, an enormously encouraging wave of optimism seems to have gripped our leading thinkers and administrators. The optimism appears to flourish in spite of obstacles of the first magnitude: personnel and financial deficiencies. I shall be surprised if the final report of the Joint Commission on Mental Illness and Health does not reflect this same spirit. As for the American Psychiatric Association, it does not speak often, but when it does, it speaks with an authority that derives what the profession as a whole regards and accepts as good and excellent. In this context it seems to me incumbent on the Association to pronounce a new set of goals for the psychiatry of the 60's as it did for the psychiatry of the 50's; and this time, may it be a set of goals directed to the pursuit of excellence and beyond minimal provisions for the humane care and treatment of the mentally ill.

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The Corpus Callosum

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Introduction

One of the most interesting and challenging fields of medicine is the study of human brain function. This field is obviously related to many disciplines, but more specifically to psychology, psychiatry and neurology. The concept that psychological functions are expressions of the brain as a whole is not new. It can be traced back to before the time when anatomists discovered the complex structure of the brain and physiologists demonstrated that afferent and efferent impulses are carried by specific tracts and fibers.

If the brain functions as a unit integrating peripheral sensations in perceptions and consciousness, certain areas of the brain are known to play a more relevant role than others in this high process. These areas are: the "frontal lobes," the "temporal lobes," the "visceral brain," the "reticular system" and the "association-pathways."

Among the association-pathways, the largest is the "corpus callosum," named because of its hardness. It interconnects the cerebral hemispheres, representing a significant part of the total neural association system. The present paper will attempt to review some anatomical and physiological data of the corpus callosum, the controversial literature concerned with its psychologic functions, based on clinical and experimental investigations and finally to formulate a new working hypothesis with regard to the function of the corpus callosum hoping to initiate renewed research.

Anatomic and Physiologic Data

The corpus callosum is a large band of commissural fibers connecting the cerebral hemispheres. It can be seen at the bottom of the longitudinal fissure of the brain, in its medial dorsal portion, the lateral parts being concealed in the centrum ovale. The dorsal surface is covered with a thin coat of gray matter embedding four longitudinal striae which represent a rudimentary hippocampus of unknown function. In a coronal section of the brain taken through the lateral ventricles, the corpus callosum appears as a thick band of white matter forming the roof. In a parasagittal section of the brain, the corpus callosum appears also as a thick white band curving at the extremities to form the genu and rostrum anteriorly and the splenium posteriorly.

Experimental and pathologic studies have revealed that the corpus callosum has the widest distribution of fibers to the cerebral cortex. Fibers crossing the genu sweep forward to the frontal lobes. Those crossing the main body sweep outward superiorly and inferiorly into the frontal, parietal and temporal lobes. Fibers crossing the splenium sweep posteriorly into the occipital lobes. Most of these data have been acquired by means of the "retrograde degeneration method" of Marchi,[35] but recent neurophysiologic methods have contributed to the knowledge of some asymmetric callosal fibers.

Electric stimulation of an afferent nerve ending at the pial surface of one cerebral hemisphere, produces an action potential in the opposite cerebral hemisphere, at one or more points, or down in the brain stem. Some fibers connect the suppressor area eight of the frontal cortex with the opposite occipital area eighteen.[22] Others, crossing the rostrum of the corpus callosum relate the posterior orbital cortex, and the premotor frontal cortex with the ventro-median nucleus of the hypothalamus.[13] The function of these heterotopic connections is not as yet understood. Finally, where in the cortical layers do the callosal fibers originate and where do they end?

Curtis[12] and other investigators have demonstrated in cats that ascending fibers of the corpus callosum ramify in the upper layers of the cortex ending in the first layer; here

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they synapse with interneurons descending into deeper cortical layers. The cell bodies of the callosal axons of canine and human specimens lie in the layers III, V and VI of the cortex. The specific function of these intracortical relations is obviously a difficult problem in the present status of the neurophysiology.

Considering the wide scope of callosal fiber-projections, it is presumed that psychological functions such as learning, association and memory depend, at least in part, on this particular system of neurons. However, observations based on clinical study of pathologic and experimental lesions of the corpus callosum are controversial. A brief review of the literature on this subject is therefore submitted.

Clinical and Pathological Studies:

I. *Agenesis of the Corpus Callosum* is a congenital developmental defect due to unknown factors. Recently Naiman and Fraser[26] reported this anomaly in two siblings, both suffering from mental retardation and physical underdevelopment, suggesting the possibility of a genetic etiologic factor. This condition was rarely demonstrated in life before the introduction of pneumoencephalography. In 1953 Carpenter and Druckemiller reviewed 45 cases from the literature which had been diagnosed in life by pneumoencephalographic studies. Of this group, 18 showed physical and mental retardation and 32 convulsive disorders. Impaired mental development was reported also in the absence of physical deficit. It must be noted that 25 cases had been diagnosed before age two and another eight before age eight. When "normal psychologic development" has been reported in association with the agenesis of the corpus callosum it is difficult, *a posteriori,* to establish how differently the patients would have developed if the agenesis were not present.

However, it can be stated that the absence of the corpus callosum might be important for normal psychologic development but certainly the relation between agenesis of the corpus callosum and mental retardation can not be accepted as cause to effect, because the mental retardation may very well be due to some etiologic congenital factor as the agenesis itself.

II. *Marchiafava-Bignami's* disease has been reported in about 50 cases, all but two of which in patients of Italian extraction, with a long history of alcoholism and poor nutritional intake. The "eponyms" are used to honor the pathologists who described the first case in 1903. The lesion is limited to the corpus callosum: symmetric bilateral demyelinization of its middle layer, without inflammation. Nielsen and Courville[27] believe that the lesion is of vascular origin. In 1945 Merritt and Weisman[23] reported two cases, one of which was not in an Italian. They were unable to find any other cerebral lesion beside the necrosis of the corpus callosum and concluded "present knowledge indicates that the symptomatology must depend on a wider disturbance of cerebral function than anatomical investigation can disclose."

Psychiatric symptoms are the first indication of the disease and those for which hospitalization is required. At the beginning, irritability and outbursts of violence are described,[19] but later apathy and lack of spontaneity become the main symptoms. Somatic signs may be present such as tremor, dysarthria, convulsions and autonomic disturbances. The apathy progresses to fatal coma. This picture, the fatal course, the absence of polyneuritis and Wernicke's syndrome distinguish this entity from the Korsakoff's psychosis. At autopsy the differential diagnosis is certainly easier.

In the etiology of this disease, three factors are dominant: 1) a toxic factor (chronic alcoholism); 2) a metabolic factor (avitaminosis) and 3) a genetic factor (Italian progeny). Bohrod[9] believes that the toxic factor is related to a cheap homemade Italian wine. However, it has been demonstrated that long-continued injections of sublethal doses of potassium cyanide to cats may reproduce the necrosis of the corpus callosum in all its gross and histologic characteristics.[17]

The importance of the second factor, poor nutritional intake, is substantiated by the reproduction of a similar lesion in dogs by

starvation.[27] The genetic factor is less important now that some cases have been described in patients not of Italian descent.

It is difficult to establish how much of the psychiatric symptomatology in this disease is caused by necrosis of the corpus callosum *per se* and how much is due to the general cerebral alcoholic damage. It seems that apathy is the main symptom which could be related to the callosal lesion, but there is no evidence for this conclusion and any attempt to assign to the corpus callosum a specific psychologic function, from the analysis of this disease alone, remains hypothetical.

III. *Neoplasms of the corpus callosum* are rarely limited to this area if they are infiltrating, such as astrocytoma or glioblastoma multiforme. Of the cases reported by Voris and Adson,[37] in which mental symptoms were dominant, only in two was the neoplasm confined to the corpus callosum and in all of them the cerebral spinal fluid pressure was increased. It can be logically objected that all psychiatric symptoms might have been caused by the neoplastic infiltration of the surrounding cerebral regions and by the elevation of cerebral spinal fluid pressure. When the tumor is well limited to the corpus callosum, such as lipoma, the problem is different. Alpers and Grant[5] believe that in these cases a definite clinical syndrome is present, in which psychiatric symptoms dominate over neurologic signs.

The main complaints are: apathy, inability to concentrate and to maintain attention on a specific subject; the patients reveal slow association; they are forgetful and occasionally have delusions and hallucinations. In 1946 List et al.[21] analyzed 30 cases of lipoma of the corpus callosum taken from the literature. They were not surprised to observe that clinical symptoms and signs were scarce, considering the usual small size of the tumor, the congenital origin and the lack of further expansion. However, in several cases mental changes had been reported. Nordin et al.[28] in 1955 added 15 more cases to the series of List. Positive psychiatric symptoms were present, but with much variation—mental changes, behavior problems, retarded development were noted in addition to convulsions and occasional hemiparesis.

It seems that psychiatric symptoms, with or without neurological deficit, are commonly present even in those patients where the callosal tumor is limited and histologically benign, such as lipoma. Moreover, where these symptoms have not been reported the psychiatric examination was incomplete and more subtle psychometric studies not available.

The controversy extends behind the clinical investigations into the experimental field.

Experimental data: Among those authors who deny any psychologic function to the corpus callosum are Dandy, Van Wagenen and Herren and Akelaitis. Dandy[14] stated that the corpus callosum may be sectioned without ill effects. Three of his patients survived surgical removal of pineal tumor, without developing psychological disorders. One of these, however, died three months later, one had been operated only four months earlier and the last had a recurrence of the tumor 2½ years later. In addition, Dandy did not say if these patients had been studied by psychometric methods. Van Wagenen and Herren[36] sectioned the corpus callosum in uncontrolled epileptic patients with the idea of limiting the seizure spread to one hemisphere. Their patients were carefully studied by Akelaitis and Smith who reported their findings in several articles. From their work it would appear that section of the corpus callosum did not produce change of practice and stereognostic function, personality, speech, gait, sphincter control or visual fields. (Only adiadokokinesis of the left hand was fairly constant.) In 1947 Smith[31] reported his studies of the bilateral integrative action of the cerebral cortex for verbal association and sensory-motor coordination in six patients of Van Wagenen and Herren series. All psychologic functions showed increase in response-time after section of the corpus callosum, with the following distribution:

1) verbal association: 12%.

2) discriminative (visual) reaction: 16%.

3) simple reactions to visual, auditory and tactual stimuli: 51%.

Smith concluded:

"This radical increase in response-time for simple reaction appears to be the only psychological function disturbed significantly, among many perceptual, motor, intellectual and sidedness activities, which have been studied . . . these results account for the general appearance of inertia and lack of spontaneity, which persists in patients with extensive lesions of the pathways connecting the cerebral cortices."

Among those authors who assign to the corpus callosum a definite psychologic function are: Seletsky and Gilula, LaFora and Prados, Kennard and Watts, Trescher and Ford, Myers, Sperry and Stamm.

LaFora and Prados,[20] in 1923, demonstrated mental symptoms in cats and apes after section of the corpus callosum, and Seletsky and Gilula[30] reported the same ill effects in cats and dogs;—these symptoms were noted mainly when the genu and the anterior portion of the corpus callosum were sectioned. They were defined mainly as "apathy, inhibition states, lack of interest in surrounding." Kennard and Watts,[18] studying the effect of the section of the corpus callosum and motor performance, noticed no motor weakness or reflex grasping, only inertia and slowness in initiating purposeful movements. Trescher and Ford[34] sectioned the posterior half of the corpus callosum during an operation for a colloid cyst of the III ventricle. The patient showed complete disorientation for time, place and person, with confabulation and euphoria for several weeks after surgery, a Korsakoff's syndrome. They stated that the section of the corpus callosum had been the only injury to the brain, during the operation. However, numerous other symptoms contrast with their assumption, such as: inability to form and retain topographical memories, to recognize letters by touch in the left hand, without astereognosis or cutaneous anesthesia, inability to recognize letters falling in the left visual field, with inattention to the left but without hemianopia.

In recent investigations, utilizing psychological techniques, Myers[24] has greatly contributed to the demonstration of a specific function of the corpus callosum in transferring visual experiential or gnostic data between the cerebral hemispheres. Cats, with the crossed retinal fibers sectioned at the optic chiasma, were trained to discriminate visual patterns with one eye covered by a mask. When the mask was later shifted to the trained eye, the cats were still able to perform visual discrimination with the other eye, that is, with the untrained hemisphere, unless the two hemispheres had been trained independently with contrasting, conflicting patterns, or the corpus callosum had been sectioned prior to the training. These experiments demonstrate that the corpus callosum has an important integrative function but is unable to help in differentiating the two conflicting responses in a single hemisphere.

Myers and Sperry[25] extended their investigations to demonstrate that independent visual memories are engraved in both hemispheres, even when the sensory input is unilateral, and that one hemisphere may participate to the activity of the other, at the time of the response, through the corpus callosum. Finally, Myers[24] has localized the visual gnostic process in the posterior part of the corpus callosum.

Stamm and Sperry[33] have also demonstrated that somesthetic discriminations, learned by cats with one forepaw, are transferred to the other forepaw through the corpus callosum. These are only a few of the studies suggesting the possibility of a functional differentiation within the corpus callosum. It would be interesting to observe if electric stimulations to the corpus callosum in conscious patients produce any specific subjective psychologic effect.

Even if there is lack of unanimity among various investigators, and the experiments with animals have their limitations, it seems that a new vigorous trend re-assigns to the corpus callosum an important function in the integration of sensory experiences and other psychological processes. Further it is noted that cats may perform simple visual discriminations, after removal of both occipital lobes, with light intensities compa-

rable to those required for night vision.[15] However, this was not the case in the above experiments and the failure to recognize visual patterns with the untrained eye in cats having the corpus callosum sectioned, stands against the possibility of a transfer process through lower commissures.

Conclusion

The function of the corpus callosum remains as yet an unresolved enigma. Pathologic and experimental studies made on this subject have been controversial. Recently it has been demonstrated in animals that the corpus callosum plays an important role in the transfer process of learning from one hemisphere to the other. Actually visual patterns cross its posterior region.

Failure of this transfer process has been noted when the two hemispheres have learned contrasting conflicting patterns. These experiments strongly suggest that the corpus callosum might have a definite, though limited, functional activity, and further studies are in order. In the current concepts of neurophysiology it is recognized that unilateral peripheral stimuli reach the opposite cerebral cortex, but their integration develops in parallel in both hemispheres mainly because of the functional transfer activity of the corpus callosum. This has the broadest scope of fiber-projections whereas other commissures (anterior, posterior, hippocampal, habenular, etc.) relate more restricted and specific areas. Also midbrain commissures are known but they are believed to have a less important psychologic function.

Since science develops by way of working hypotheses even when further studies might prove them to be false, it is justifiable to introduce here a new concept with regard to the function of the corpus callosum. We have noticed that the main symptomatology associated with extensive lesions of the corpus callosum consists of progressive apathy, lack of spontaneity, deficit of intellectual selection and of learning processes (the latter mainly in cases of agenesis). In addition only a marked increase of the response-time for simple reactions was noticed by Smith in human patients following the section of the corpus callosum, among many other psychological activities studied. Smith correlates this finding to the main symptomatology described in patients having extensive pathological lesions of the corpus callosum.

We suggest the possibility that the corpus callosum might be a functional part of the "reticular activating system." Before peripheral impulses reach the cerebral cortex via specific sensory organs and pathways, collateral stimuli are sent to the reticular formation of the brain stem. This formation will activate the cortex so that the incoming impulses reach the threshold of attention perception and consciousness. Afferent impulses will produce specific responses in accordance with the areas involved; for instance, a sudden flashing light will cause the eyelids to blink, a painful stimulus to one finger will cause the finger and the whole arm to withdraw. Moreover, a chain of reactions among cortical neurons will persist after the specific responses to the stimuli are over, like a succession of waves produced by a stone thrown in a lake. This wide spreading cortical activity will have the function of keeping the brain in a state of alertness and receptivity for further impulses as a "battery" alimented continuously by external and internal stimuli.

The corpus callosum will allow any unilateral "charge" to be transmitted to the other hemisphere for the external impulses come from either side, at times independently. This transfer process does not necessarily mean that a similar process is not acting at a lower level in the brain stem. This hypothesis requires further experimental investigation and if verified, it might explain some of the psychiatric conditions where inertia and apathy dominate. In addition, it is implied that section of the corpus callosum might be considered as an alternative surgical procedure for those conditions where lobotomy is indicated.

Summary

Anatomical and physiological data of the corpus callosum have been reviewed. Some of the reports in the literature regarding

pathological lesions of the corpus callosum, such as "agenesis," "primary degeneration" and "lipoma" have been analyzed with attention focused on psychiatric symptomatology. Few psychological studies made after section of the corpus callosum in human patients and experimental animals have been reported.

The controversy about the psychological function of the corpus callosum has been brought out.

From the analysis of the main psychological disorders, observed in pathological and experimental lesions of the corpus callosum, a new working hypothesis has been derived defining the corpus callosum as a functional part of the "reticular activating system."

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The Current Status of the Tranquilizers and of Child Analysis in Child Psychiatry

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For physicians whose perspective has been fashioned by experiences with adults, child psychiatry presents a number of paradoxes. The following observations will help provide a proper orientation.

1) In the area of diagnoses, child psychiatrists and particularly child analysts are accustomed to talking about the "infantile neurosis" in accordance with the classical Freudian concept that the infantile neurosis is a phase of development which is usually successfully resolved in the process of growing up, i.e. in the resolution of the oedipus complex. However, it must be noted that we rarely see the classical manifestations of neurosis: an obsessive compulsive state or a conversion hysteria such as may be found in adults. Going one step further, it can be emphasized that the child not only rarely manifests the classical types of neuroses, he also rarely makes any kind of complaint. Indeed it is the parent who does the complaining about the child. The very factor which tends to produce neuroses in childhood i.e. the strong need for love, the attitude of dependency on the patent, is also the factor which facilitates learning in children. It is therefore understandable that in any child the emotional disturbance may be manifested as a learning difficulty rather than a form which could be classified as a neurosis.

2) The doctor then, in making his diagnosis does not look solely for evidence of psychopathology in the form of regression as he would in adults because some of these manifestations are always present as "normal" in children. The child's discomfort is not an accurate measure of the severity of the problem, since once his defenses have been established, little anxiety may be experienced by the child. Even the parents' concern is not necessarily proportionate to the severity of the problem. The physician must determine the degree and severity of signs of regression and fixation, as well as their duration. These data are utilized to evaluate the interference with ego functioning and the extent to which this condition is reversible without treatment.

When we turn to the treatment of the emotional problems of children we find that inasmuch as it is the parents who usually complain of the child, the treatment unit must comprise both the parents and the child. Indeed this approach has led to the popular statement that there are no problem children but only problem parents. The above statement has been attacked vigorously in recent years due to observations on the constitutional aspects of serious childhood disturbances such as schizophrenia. These children have intrapsychic problems which cannot be eliminated simply by changing the environmental attitudes. Furthermore, adequate treatment of the intrapsychic problem in the child will, in many cases, enable him to get over his problem and stay well even though there has been no real change in the parents.

In the use of such psychopharmacological agents as the tranquilizers, the proper dose of medication is that which lowers the level of anxiety so that disorganization of the personality or of the family unit is prevented, but without removing all of the anxiety. As Kierkegaard stated, "Anxiety can be our greatest teacher." It cannot be emphasized too strongly that the effect of the drug must be evaluated by observing every member of the family unit and in the case of the school child with a learning problem, the teacher, as well. In a similar way the placebo effect of these drugs must be judged from the responses of every member of the group. For example, a child with a reading disability

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was given placebo therapy while evaluations were carried out on other children so that comparisons could be made. Both mother and the child reported beneficial effects from such a medication. Two weeks later the mother reported with an embarrassed smile "that the medicine was just wonderful." She had become nervous when her husband had to enter the hospital for an operation. She took some of her daughter's medicine and felt "just as if she was walking on air."

Perhaps, the failure to consider the family unit in evaluating the effects of a psychopharmacologic agent in a child is an important reason for the conflicting reports various observers have made on the effect of such drugs in children.

With this orientation in mind, evidence is given of summarized conclusions on studies involving more than 400 children observed in two different out-patient psychiatric clinics with research orientations. The children's ages ranged from 2 to 17 years and the period of observation was from three months to five years. They were treated with a number of tranquilizers (Thorazine,[1] Compazine,[2] Stelazine,[3] Vesprin,[4] Equanil,[6] Miltown,[7] Serpasil[8]) and the variety of emotional disturbances covered by the spectrum of psychiatric disturbances in children. Many of the patients came from broken homes, foster homes or institutional placements. In reporting any kind of quantitative evaluation of tranquilizers in children the truism must be re-emphasized that one never treats only the emotionally disturbed child. We are always treating a unit comprised of the patient and the mother or mother surrogate at least. In many cases we are treating the entire family. In learning problems the teacher must be included in the complex which we call a unit and in residential cases social worker contact is involved.

Some aspects of treatment, such as the placebo effect, the attitude of resistance of children to tranquilizers (because of the stigma of being labeled "crazy" by their peers), and the resistance of many doctors and parents to the administration of tranquilizers to children will not be considered in this paper.

These findings can be summarized:

(1) The drug is always used as an adjunct to a therapeutic relationship in which psychotherapy usually played the major role.

(2) The major tranquilizers, the phenothiazines, have an established place in the treatment of the psychoses and related states such as autism, as well as in the primary behavior disorders of children.

(3) Common manifestations of emotional conflicts, such as enuresis, head banging, hyperactivity with displaced aggression and nightmares have abated in a significant number of cases.

(4) The beneficial effects far outweigh the dangers resulting from side effects. The most frequent side effect encountered was drowsiness which always disappeared following a decrease in dose. Basal ganglia manifestations such as dystonias and parkinsonian manifestations occurred relatively rarely. In most of such cases the reaction was an idiosyncratic one which appeared early in the course of therapy and tended to reappear if the administration is renewed. No cases were seen in which the process was not completely reversible by withdrawal of the drug or the use of specific treatment. No cases of agranulocytosis, jaundice or serious dermatologic reaction were seen.

(5) A newcomer in the field of drugs, Stelazine, was studied and was found effective in psychotic and autistic children.

(6) Meprobamate is the oustanding preparation of the minor tranquilizers. Favorable reports on meprobamate stress decrease in anxiety, hyperactivity and improved sleep pattern. The advantage over the potent phenothiazines, i.e., the absence of parkinsonian and related basal ganglia symptoms, is significant. While withdrawal and habit-forming effects in adults have been reported by enough observers to alert the therapist in the long term administration of this drug, these difficulties have not been met in this research stuly.

1. Chlorpromazine (SKF); 2. Prochlorperazine (SKF); 3. Trifluoperazine (SKF); 4. Trifluopromazine (Squibb); 5. Fluphenazine (Squibb); 6. Meprobamate (Wyeth); 7. Meprobamate (Wallace); 8. Reserpine (Ciba).

(7) There is a high level of agreement that meprobamate is of little use in treating psychoses and related states in children.

(8) Learning difficulties in the form of reading disabilities have responded favorably to both the phenothiazines and meprobamate.

(9) The tranquilizers do diminish aggression as they influence the fight-flight response. Thus a type of behavior more conforming to pattern can be provoked, but there is no good evidence that serious sociopathic behavior can be favorably influenced. Serious sociopathic behavior is looked upon as antisocial behavior without any evidence of anxiety or guilt.

(10) Finally, a most important question: What does the long term administration of tranquilizers do to the personality of the growing child? While one cannot authoritatively answer this question as yet, present observations indicate that harmful effects are not obvious thus far.

Report on Stelazine

A trifluoromethyl phenothiazine, trifluoperazine (Stelazine) which has been found effective in adult psychotics was studied for its efficacy in markedly disturbed children. Although there are numerous reports of the action of the drug on adults, the paucity of findings on groups of very sick children stimulated the study and gathering of the following data. A series of 23 children ranging in age from 2 to 17 years was given Stelazine in doses ranging from 2 mg. to 20 mg. daily. Most of the patients received the drug for a period of six to fourteen months. Eight of the patients manifested side effects which necessitated the removal of the drug. These effects were typical manifestations of basal ganglia dysfunction such as dystonias involving the head and neck in the parkinsonian-like symptoms: oculogyric crises, fixed facies and restlessness (akathisia). All of these findings disappeared when the drug was stopped. While it has been our experience that the size of the dose does bear a direct relationship to the incidence of such neurologic dysfunctions, there can also be an idiosyncratic reaction in some patients to smaller dosages which occur repeatedly on fresh trials. Many of these patients thus react unfavorably early in the course of treatment. One can then usually assure the parent, after an initial observation period of a few months, that the patient will stabilize on that particular dose and will not require a closely watched schedule of drug evaluation. It is significant that some of these patients were found to show cerebral dysrthythmia in their EEG tracings; the use of Stelazine, however, did not produce seizures in any of these patients nor did the subsequent EEG patterns suggest further dysfunction. The children in this study came from environments of foster homes or institutional placements. Because of the psychopathology encountered and the limited staff, only superficial supportive therapy was given in addition to psychopharmacologic agents. The efficacy of the Stelazine was highlighted in that fair to excellent results were obtained in 15 patients, of which 13 had failed to respond satisfactorily to other tranquilizers, including prochlorperazine, compazine, meprobamate and ultran.

Case Study

P.R., a female, was first seen at the clinic in 1955 when she was five years old. She was born April 30, 1950, and was first referred to the clinic on June 10, 1955, with the complaint of "having staring spells, being seemingly unaware of her surroundings, being aggressive and hyperactive, and being restless in her sleep. She was also found to be destructive, unfriendly, unaffectionate. She showed appetite, but had to be fed. She was raised in a foster home, and did get considerable care and attention from her foster parents, but could relate to no one. She would knock her head against the floor or wall, smile inappropriately, make faces to herself and be oblivious to her surroundings.

Psychologic examination at that time showed the patient to be mentally retarded. Electroencephalogram was definitely abnormal with a persistently fast brain pattern. The abnormal high voltage slow range waves and sharp waves were considered indicative of a cortical dysrhythmia. She was diagnosed as having an organic behavior disorder with associated convulsive phenomena. In view of her cerebral dysrhythmia she was first placed on phenobarbital and sodium dilantin and continued on this therapy from June 1955 until July, 1956. At this time, because of failure to improve and because of her marked aggressiveness and destructiveness, she was placed on Thorazine syrup, 10 mg. three times a day along with Phenobarbital ¼ gr.

three times a day. The patient showed no improvement on this medication; in August, 1956 the Phenobarbital was discontinued but the thorazine syrup was continued. A monthly check-up showed little or no improvement. In December, 1956 it was reported that she was a little quieter and that she had learned bladder control but showed no marked general improvement. In September, 1957 the Thorazine was discontinued and she was placed on Ultran. She was still described as fearful, restless, inattentive, and destructive. She was now definitely autistic and was diagnosed as a case of schizophrenia by the clinic staff. As of November, 1957 she was sleeping better but showed no other change in her conduct. She remained without medication from November, 1958 until January, 1959 at which time she was placed on Stelazine, 2 mg. four times a day. She was not re-examined until June, 1959, after a period of almost five months, although telephone contacts were made. She was continued on Stelazine (2 mg. four times a day) and improvement was noticed from the beginning. She was re-examined psychologically in July, 1959 and the report stated that she was no longer hyperkinetic; although still active, her activity was purposeful. She was now very talkative and she could be understood although her speech was indistinct. She tried to repeat words. She was more friendly, more playful with the other children, and displayed a great deal of affection towards everyone in the family, particularly the male adults. Her improvement was such that she was able to attend school and join in the class activities. While she seemed to go into trance-like states (as an escape into fantasy?), she was more in contact with reality. While at the seashore during the summertime, she lost her phobia for water, became more meticulous about herself and also enjoyed her own swimming pool in the backyard. When seen on December 10, 1959 her foster mother painted a remarkable picture showing that a complete change had taken place in the past year. Under Stelazine treatment (2 mg. four times a day) she had lost much of her fear and anxiety, and all of her phobias. She was no longer destructive; in fact her foster mother brought in toys she had been playing with in the past year that were not even scratched. When seen again she was curious and intelligent; she sat with the examiner, asking questions and listening to replies quietly and obediently. She was friendly and affectionate and accepted any demonstration of attention without fear and anxiety. Although the child is still a schizoid, her autistic state after several years of medication has disappeared. The dosage at this time is Stelazine 2 mg. four times a day.

While it may be premature to theorize on the explanation for the greater effectiveness of Stelazine for the psychotic or seriously disturbed child, a review of the literature does offer some clues. MacDonald et al. have observed that Stelazine effectively eliminated or modified aggression and hostility. This action has also been attributed to Thorazine. The uniqueness of Stelazine may lie in the claim made for it by Kovitz: Stelazine acts both as an ataractic agent to calm aggressive patients and as a stimulant to stir passive and sluggish ones into productive activity and contact. A number of workers confirmed that there are marked withdrawal delusions and hallucinations following Stelazine therapy. Lehmann and Knight have submitted 18 healthy volunteer subjects to their battery of psychophysiologic tests in conjunction with the administration of Stelazine. The results reported imply that the drug acts selectively to decrease perceptory intake and psychomotor speed and at the same time increase attention, concentration and general vigilance. If one recalls that agents such as mescaline which can produce psychotic states have the effect of increasing sensory input we might deduce a possible psychophysiologic explanation for the antipsychotic action of Stelazine.

In turning from the field of psychopharmacology to child analysis we can start off with the categorical statement that the chief indication for child analysis is an emotional difficulty of such seriousness that it is felt that without such deep and intensive treatment mental health can not be restored. It is obvious from the comments made in the orientation that the evaluation of such a situation is more complex than that required for the adult. However, if the family background is too disturbed, or when the aims of the analysis seem to be in direct opposition to the needs of the parents, treatment should not be started.

It is significant that in some cases treatment has to cease in spite of the child's cooperation simply because of the parents' resistance. Furthermore, the major therapeutic factor in the treatment of the adult—the transference neurosis—cannot be utilized in the treatment of a child since in this instance the development of the negative transference is avoided and the positive transference is manipulated rather than analyzed.

Jealousy as a Motive in Homicide

EDWARD PODOLSKY, M.D.

Murder actuated by motives of jealousy is not uncommon. Jealousy is a complex emotion which requires some exploring in order to evaluate its part in the dynamics of homicide.

It has been ascertained that people who are particularly prone to jealousy are frequently incapable of deep, lasting love. They tend to change their love-objects continuously and readily. They are even capable of becoming jealous of love-objects toward whom they were indifferent before they had occasion to become jealous.

In a person prone to jealousy, there is often a compounding of depression, envy, and aggressive tendencies with which a deprivation of love is reacted to. He betrays pronounced intolerance for such a loss. Generally the dread of the loss of love is strongest in those for whom to be loved is far more important than to love. The fear of the loss of love is most pronounced in those to whom loss of love is actually the most catastrophic thing that can happen. They perceive it not only as a sexual frustration but also as a severe blow to their self-regard. It can be stated that to experience loss of love as a narcissistic injury is a specific characteristic of jealousy.

Freud stated that analytical work had shown that instances of jealousy revealed themselves in three layers or stages. These are: a) normal competitive; b) projected; and c) delusional.

Normal or competitive jealousy is comprised of the grief of losing a loved object and the pain of the personal wound originating in the oedipus or family complex of the first sexual period. Thus, the subject experiences again the loss of the person of the opposite sex to competitors; an old wound is reopened.

Projected jealousy is that type derived from actual unfaithfulness or thoughts of unfaithfulness on the part of the subject which have succumbed to repression. The subject is battling with his own drives of infidelity and salves his conscience by imparting them to the object.

The third and most malignant type is delusional jealousy. This is associated with paranoia, and as Freud has stated, is based on repressed homosexuality. Here, as in the projected jealousy, the symptoms have their roots in repressed drives of infidelity but, unlike projective jealousy, the love object is really the intruder.

Jealousy becomes delusional when there is a display of the basic paranoid characteristics of persecution. Delusional jealousy is not merely an exaggeration of normal jealousy but a psychotic restitution product. This is obvious even on the surface: its fixed and rigid character; its exclusion of all contradictory evidence; and its acceptance of the most trivial and minute confirming evidence. The paranoid jealous individual is on the alert for indications that he is right. There is the same excessive alertness toward the most insignificant signs of unconscious attitudes in others, with the same lack of awareness of his own persecutory delusions. He displays evidence that primitive defensive operations of denial and projection are somewhere in his psychic background. Often it has been found that there are paranoid delusions in which the person believes that he is loved sexually by another person who, for one reason or another, does not directly avow his love but does indicate his or her love in a great many devious ways. This is most common in women and in passive, dependent men. There are times when these misconceptions may lead to homicide. Often the love involved may be self-love, which is denied or projected onto another person. Again it may be a defensive maneuver which substitutes heterosexual attachment for denied homoerotic trends.

Generally an inability to love based on a deep ambivalence is apparent in those individuals whose love-object relationships are governed by jealousy. Occasional jealousy may correspond to the intensity of love feel-

ings. However, those types where jealousy is an ever present characteristic are precisely those who are not able to develop a genuine love because all their relations are intermingled with a narcissistic need.

Experience confirms that jealousy is not necessarily most intense when love and gratification have been most intense. On the contrary, persons disposed to jealousy are those who change their love-objects continuously and readily and who are even jealous of love objects in whom they have had no special interest until some extraneous circumstance aroused their jealousy. If jealousy were a simple painful reaction to a frustration, it might well be expected that it would be warded off as much as possible. Actually, jealousy generally shows the opposite characteristics, an inclination to obtrude and to become an obsession. It is apparent that clinging to the conscious thoughts of jealousy serves the repression of something else.

There is no doubt that the mixture of depression, aggressiveness, and envy with which a jealous person reacts to loss of love induces a special intolerance for loss of love. Fear over loss of love is more intense in those for whom this loss means a diminution of their self-esteem. Since even clinging to possessions may satisfy the same function for self-esteem as other external influences, in an ideologic culture in which one spouse is looked upon as the sole possession of the other, there is great likelihood that jealousy may be developed as a means of fighting for self-esteem.

Frequently the obsessive character of jealousy is due primarily to the fact that the actual situation which roused the jealousy reminds the person of a similar one that had been repressed. The actual humiliation is consciously in the foreground and this helps to keep a past humiliation in the background.

Jealousy as a motive in homicide is of frequent occurrence. The crime of passion is common. The following is a good example of homicide caused by jealousy. This man was an individual of high intellectual capacity of good family background. He wrote his story as follows:

"Coming by birth from a family whose character and social standing were above reproach, I lived the life of the average, healthy, normal boy, and later loved and was loved by the girl who became my wife. Our union was blessed with six boys, three of them dying in infancy, and for eleven years our married life was one of happiness and devotion on the part of both.

"A neighbor and pretended friend attacked my wife and, she told me, attempted rape, and this resulted in my borrowing a revolver and assaulting this man. We were arrested, and without appearing in court I paid a fine of $15.00.

"Followed four years of protracted infidelity on the part of my wife, causing a mental condition that could no longer be endured, so I enlisted in the U.S. Army with the intention of a permanent separation, but sickness and the children and constant and urgent appeals from the wife caused me to return home.

"In less than a week I found a baker having sexual relations with my wife and as a last resort agreed to take her to a new home where her indiscretions would be unknown. In our new residence I had continued evidence of infidelity and was so depressed mentally that I purchased a revolver intending to end my life, and after a night of mental strain and dreams of an exciting nature, I shot my wife and myself."

The testimony given at the trial is an elaboration of this story. He shot his wife four times with a 32-caliber revolver, which he bought two days before the tragedy. He claims that he had bought it for the purpose of committing suicide.

He left school at the age of sixteen, when he finished the eighth grade, and went to work. At 22 he married the nineteen-year-old daughter of poor, respectable parents, a girl with some musical talent who was employed in a local shirt factory. He started as a night clerk, then worked in a restaurant, then for eight years in a furniture factory and for ten years thereafter at other factory work.

There is no evidence of any abnormal conditions in his early life or in his development. But he was obviously unprepared, because of nature or training, perhaps both, to meet sanely the crisis in his marital relationships. The rupture with his wife seems to have occurred when she became intimate with one of the choir members. Church officials and the choir felt that the wife was as blameworthy as the man, and the facts sug-

gest that they were right. She next became intimate with a grocery clerk, as she herself admitted when her husband accused her of infidelity. At this juncture he enlisted in the army, but was discharged about nine months later because his dependents were in need. Even while he was in service his wife had written him about a man who had been kind to her, given her presents, and offered to buy her a home. Upon his return he learned that she had been a frequent visitor at this man's home, and she herself admitted having been intimate with him.

The couple talked the matter over and decided to try to live together elsewhere. But the change of location did not remedy the situation. He reports that whenever they went uptown his wife flirted with men. He returned from work early one day, concealed himself behind the house, and presently saw a man come out of the back door. It was then that he decided to kill his wife.

The following is another case in which murder was committed for reasons of jealousy.

Lewon Melkonian was born in Russia in 1914, of Armenian parentage. When he was an infant, his father was killed in World War I. His mother died soon afterwards and in early childhood Melkonian was raised in an orphanage under very unfavorable conditions. Later he was cared for indifferently by relatives. His entire childhood was spent in an atmosphere of extreme poverty, emotional deprivation, and social turmoil. He tried to become a house painter, but at the age of 20, in 1934, he was drafted into the Russian Army. After three years service he was released only to be drafted again in 1940. He was in combat near Stalingrad for a little less than a year and was then captured by the Germans. After 11 months in a prison camp he escaped in 1944. He took refuge with an Armenian family and it was with their daughter that he fell in love and married. Shortly after the marriage, he and his wife were taken by the Germans and placed in a concentration camp. There he witnessed and experienced much horror and brutality. They were released by the Allies in 1945 and taken to a displaced persons camp. It was in the D.P. camp that their three children were born.

All of his life he had planned and dreamed of marriage and a good home life. The prison, concentration, and D.P. camp experiences were intolerable frustration and his constant daydreaming of the happy life to come was his sole comfort. He developed severe symptoms of nervousness, tension, irritability, startle reactions, and moody depression from which he would escape into his idealized phantasies. He was particularly affected by his witnessing the shooting of hundreds of Jews in the concentration camp. He became very panicky and this experience left a permanent impression. It was harder to bear the frustrations of the D.P. camp. He had naively expected quick release, and as the years went by his tension and depression increased.

Finally in 1949, through the mediation of a refugee organization, he and his family were brought to the United States for settlement in an American colony in Fresno, California. The trip to America was anticipated as the entrance into paradise; now would come the ideal marriage and happy home life. But on the voyage he discovered his wife with a strange man in their stateroom. He was stunned by this shattering of all his hopes. His wife protested her innocence and it may well be that Melkonian built up a harmless incident into much more than it actually was.

In any event, Melkonian and his wife were reconciled during the voyage and they settled in Fresno. He secured work as a house painter. Soon he became suspicious that his wife was interested in an Armenian journalist who was paying considerable attention to her. He reacted with a recurrence of all his old symptoms, was very depressed and suspicious. He had some ideas of reference at times, including thoughts that people were trying to harm him. His wife would try to prove her innocence. They would reconcile and then it would happen all over again.

Finally he decided that he solution was to move to San Francisco and take his wife away from the journalist. This he did in the fall of 1952. He and his wife lived with an old friend, named Usunian and his wife. He described Usunian as his best friend, but he did not get along well with Usunian's wife. Almost immediately he developed fears that his own wife and Usunian were overfriendly. This precipitated more tension and depression, and there was a recurrence of the severe panic of the type he had experienced in the concentration camp.

Melkonian bought a gun for protection. He entreated his wife and Usunian to desist. Later he sought aid from the leaders of the Armenian group in San Francisco. He would hide under the house or under the bed to eavesdrop on his wife. About a week prior to the killing, he hid under the bed and claims to have overheard his wife and Usunian plotting to get rid of him by poisoning him and of marrying his wife off to a rich Russian emigrè. There is reason to believe that such a conversation with these threats actually took place, but only in a joking, facetious way, the two having no idea that they were overheard. Melkonian became even more fearful. He could not eat nor sleep, would refuse to go to bed at night, lying on the couch in the living room, fully dressed with the gun conspicuously in his belt.

On Sunday morning, January 23, 1953, he left the house to go to church. He had forgotten his cigarettes, and he returned home in a few minutes to find his wife and Usunian in an embrace. He reacted, in his word, of being "bereft of my mind. My blood was boiling, and I was like a drunken man. I was shaking and the house was going around and around." Most of all he was frightened—he felt sure that Usunian would now kill him. He claims that Usunian made a gesture as if to choke him. He ran to the kitchen, got his gun, and shot both his wife and Usunian, then shot himself in the neck.

Several hours later he regained consciousness when awakened by his youngest child, who had been away at Sunday school. The neck wound was superficial, and he crudely bandaged himself and he and the child walked to the church to get the other two children. He left all the children at a friend's house, then returned to his own home. The police were already there and he admitted the double killing. During his brief stay at the hospital he showed no evidence of delusional or confused behavior, although he continued to be anxious and depressed. He could not account for his actions except that he was jealous and afraid.

In the cases cited the jealousy was of the delusional type. It was of a fixed and rigid character; there was an exclusion of all contradictory evidence. Both murderers were alert for indications that they were right in assuming what they did. There was excessive alertness toward the most insignificant signs of unconscious attitudes in others, with the same lack of awareness to their own trends.

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On a Specific Type: "The Approval-Hungry Neurotic"

EDMUND BERGLER, M.D.

Phenomenologically, the apparently "insecure" person who constantly requires approval is well-known as a type, and well-known as a "pest." One frequently encounters the "approval-hungry neurotic," a person highly sensitive to the slightest criticism and constantly on the defensive, and whose demands go beyond mere, though unmitigated whitewashing. They want positive approval as well. The husband of such a woman said of her: "My wife won't be happy until General Electric puts out a combination approval-and-tenderness machine."

Life is never so obliging as to eliminate contact with indifferent, envious and even malicious contemporaries. It is the human being's business to neutralize these incessant barrages of direct or indirect hostility and to retain a modicum of psychic balance. If this is done—and normally the process proceeds automatically—self-approval becomes more important than the environment's approval or lack of approval. In some neurotics, however, automatic adjustment seems to be insufficient; they give the impression of being at the mercy of any criticism and can be wounded even by consistent absence of encouragement or praise.

To clarify the issue: These neurotics do not simply require more than average approval for their accomplishments. They consider any of their acts, no matter how routine or banal, praiseworthy; they expect the environment to recognize their acts as meritorious and reward them with suitable eulogies. To make matters worse, they lump together both sensible actions and impossible, dubious or even contradictory ones. Everything they do must be applauded—everything from making up a grocery list to purchasing an expensive mink coat.

The question arises: What makes these neurotics so "insecure" and approval-hungry?

Upon analyzing these people, one finds a complex and paradoxical undercurrent discernible. Unconsciously they are not pursuing approval but disapproval. Although they plead for praise, they invariably expect dispraise and often act provocatively. Their claim for external appreciation serves as their inner defense.

One distinguishing mark sets these psychic masochists apart from the garden variety of pleasure-in-displeasure seekers. The typical psychic masochists uses his self-provoked wrongs as the raw material for bitter complaints, while the approval-hungry psy-

chic masochist expects to be praised for his provocations.

The simplest technique of achieving disappointment consists of expecting too much. A subdivision of this technique is the refusal to accept the division of labor established in every marriage. For example, if the husband is the breadwinner, it is taken for granted that the wife takes care of the household, the children, etc. When the wife in such a marriage acts as though she were doing her husband a favor by attending to her normal duties, and requires constant praise for her "sacrifices," she is pursuing a policy of masochistic provocation.

Another type of approval-hungry neurotic specializes in asking to be applauded for doing "impossible things." A familiar example is the bargain-hunting wife who cannot resist "a terrific buy," whether she needs the object or not, whether the budget can take the expenditure or not, whether or not she has storage room for her new treasure. "Do you need that junk?" asks the enraged husband. "I couldn't resist the price, and I may need it some day," is the standard reply. After this unencouraging preamble, the wife asks him to admire her action—obviously too much of a concession for the average husband.

Sometimes the absurdity of these neurotic dramas goes one step further. Projects are begun but never completed, so that the fruits of the neurotic's labor must remain unpraised and unrewarded. In this way endless procrastination can be used for masochistic purposes.

In attempting to find a common denominator for these peculiar neurotics I was confronted with three unconscious facts:

1. These people were characterized by a strange unconscious assumption (which in adults seems slightly moronic) that the least effort on their parts was *praiseworthy per se*. They held on to the infantile situation in which a child is applauded for the effort itself, regardless of outcome: for instance, when he takes his first tumbling steps or makes his first attempt to use a spoon.

2. They all possessed *inner knowledge of their own incompetence*. Coupled with this was *the megalomaniacal fantasy of being an exception*, to whom adult yardsticks should not be applied.

3. The specific child left his (more commonly, her) childhood with *an overdose of masochistic tendencies*, perpetuated on changing objects in later life.

It would be erroneous to assume that these people are living out a simple anachronism, since every child experiences the mechanisms enumerated under points 1 and 2. Under typical conditions, the child in time learns that *charming effort* is discounted and a *tangible result* of effort is required. The approval-hungry neurotics under scrutiny were exposed to these identical experiences but failed to "learn their lesson"; the masochistic elaboration took place instead, resulting in provocations, complaints and (as defense) the wish to be praised from morning to night. Since the defensive wish must remain unsatisfied, general masochization of the personality increases.

Every psychotherapist who falls for the external trappings of these neurotics—the protestations that they wish to be loved, the appearance of "insecurity" arising from an unhappy childhood, and similar tales—becomes their dupe. He acts as senselessly as a detective who builds his case on clues planted by the criminal. Unconsciously, psychic masochists do not want love but rejection, all their assurances to the contrary notwithstanding.

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The Use of Delta I, 17 Alpha Methyl Testosterone as an Adjuvant in the Treatment of Schizophrenic Reactions

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In the past two decades, androgenic steroids have been used in the treatment of psychiatric syndromes with encouraging, albeit controversial, results. Significant clinical improvement has been claimed in the treatment of depressions,[1-6] senile reactions,[2,7,8] and in isolated instances, schizophrenic reactions.[6,9,10] Treatment of depressions with low dosage of testosterone propionate, i.e., 10 mg. three times weekly, was reported by early investigators as useless.[11] Certain cases of male involutional psychosis, according to another report, responded well to testosterone, while others received no benefit. It seemed that response was proportional to the severity of the illness, or that there were different conditions, some amenable to testosterone and others not.[12] Similar results were noted in another paper,[13] in which an increase in FSH was reported in both menopause and involutional melancholia. Testosterone resulted in improvement in atypical cases, while in others the results were no better than in untreated controls.

The following is presented as pertinent to the problem of endocrine involvement in psychiatric states. Abnormal biopsies of the testis have been repeatedly found in schizophrenic patients.[9] The frequent association of depression and paranoid states with hypogonadism has also been reported.[14] Schizophrenic patients apparently have a low androgen output, which is less than the normal male, but more than the normal woman.[15] A case of impotence associated with low 17 ketosteroid excretions, regained sexual potency and normal 17 ketosteroid excretion, following lobotomy.[7] Implicating other endocrines, pituitary atrophy and fibrosis, and hypothyroidism, occurring in 10 per cent of patients and responding well to treatment with thyroid extract, has also been noted.[16]

Many schizophrenic patients, in spite of what appears to be a normal 17 ketosteroid excretion, have no facial hair and a high gynandromorphic index.[17] Some schizophrenic patients have a low 17 ketosteroid excretion, not amenable to testosterone, and often associated with resistance to thyroid extract and insulin.[18] It would appear that the tissue response, i.e., reactivity, and not the actual level of hormone, is the important factor in these patients. In the eunuch, response to hormones is excellent; in the schizophrenic, it may be poor. When the two conditions coexist, as was reported in one case,[10] the patient's psychosis, as well as his endocrine status, improved markedly, with replacement therapy.

Evidence to support the thesis that schizophrenic patients have less adrenal reaction to stress than normal has been offered by another group of investigators.[19] The above is in accord with the reports that improvement in schizophrenic patients has often had as a corollary an increase in 17 ketosteroid excretions.[20,21] Whether this is due to a surge of pituitary-adrenal activity,[10] or increased protein intake which enhances adreno-cortical response,[22] is a moot point.

Dehydroisoandrosterone, an adrenal steroid of low anabolic effect, has been used by British investigators in various psychiatric clinical syndromes with encouraging results. They postulated the following indications:[8] Patients who were constitutionally immature (pubertal crises of Kretchmer[3,23,24]); cases of inadequate personality;[25,26] and effeminacy in males.[23] They noted as effects, an increase in self-confidence, alertness, sociability and courage,[25,27] and an improve-

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ment in rapport and psychotherapeutic results, as well as improvement in academic ability. On the negative side, patients with delusions, tenseness and aggressiveness,[25,27] and the aggressive homosexuals were made worse.[23,24] It was felt also that the drug often brought to light material that the patient might find difficult to handle in psychotherapy.[24] Of interest, is the tendency of those patients who improved, to relapse clinically when the drug was discontinued.

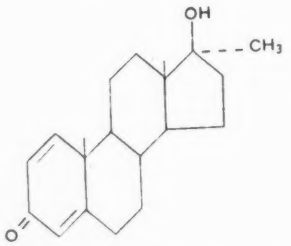
The need for an individualized approach in the use of androgenic steroids psychiatrically,[28] and a dynamic understanding, as well as endocrine replacement therapy in deficiency states, has been stressed.[3]

An analysis of the material above would suggest that further study of the possible therapeutic value of androgenic steroids in the treatment of psychiatric syndromes would bear investigation. Mood disorders and conditions in which inadequacy, weak foci of identification, poor adaptability, floundering use of a wide variety of defenses, and frank schizophrenic disorders associated with a pre-psychotic character structure, as above, would appear to be a fertile field for therapeutic application of these agents.

A possible therapeutic indication in psychiatry for these drugs was evident to the author with the advent of androgenic steroids with high anabolic action, coupled with a low level of physiological androgenic effect. The association of weight loss, muscle wasting, and general debility, with schizophrenic states is frequently seen. The apparent psychological effect of dehydroisoandrosterone, which has low anabolic action, along with an anabolic effect coupled with low androgenicity, could be present in these newer agents. This would seem to indicate that these drugs should aid in clinical improvement in schizophrenic reactions in individuals with the personality characteristics noted above in their pre-psychotic personalities, and with weight loss and general debility associated with their psychotic reactions.

With the rationale as presented above, an investigation using Delta I, 17 alpha methyl testosterone (Dianabol) was initiated. A description of the drug is presented below.

Delta I, 17 alpha methyl testosterone, with the following structural formula,



has been found to increase the body weight of adolescent rats and has only weak androgenic effects in comparison with well-known steroids such as methyl testosterone, testosterone propionate, and 19 nor 17 alpha ethyl testosterone. It has a marked ability to antagonize the growth inhibiting (catabolic effects) of cortisone, and has realtively low androgenicity as noted in various biological tests, i.e., seminal vesicle and capon-comb biopharmacological testing procedures. The drug has, for all practical purposes, no estrogenic, progestational or corticoid-like effects. It has a mild naturietic response in certain dose ranges. It appears to be androgenically about 1/100th to 1/150th as active as testosterone propionate. Dianabol has been used as an anabolic agent in Europe and the United States in severe debilitating diseases, senile osteoporosis, steroid-induced osteoporosis, hypo-proteinemia, anorexia nervosa, severe burns and trauma, amyloidosis, and premature infants. Contraindications include prostatic carcinoma, because possible androgenicity and liver damage.

Procedure

Using this agent a structured procedure was instituted as a means of testing its therapeutic efficacy in the conditions suggested. Schizophrenic reactions are often highly variable in response to treatment. Misleading results often occur when using one group of patients as controls, and another as test subjects due to the variability of response to therapeutic agents.

The author chose as subjects only those patients who had previously been followed for long periods (measured in years) and whose condition was such that on the basis

of currently accepted clinical criteria, the prognosis for improvement was extremely guarded. Many had had various forms of therapy without results with a steady downhill course. Several had become so agitated and debilitated in spite of treatment that a fatal outcome in a short time was envisaged. Also chosen, were acute catatonic patients with prepsychotic personality patterns resembling those noted, and who had had episodes of catatonia in the past.

It was felt by the author that the patients could thus act as their own controls in view of the knowledge available as to their clinical course in the past and the prognostic concepts inferred by application of accepted psychiatric diagnostic and evaluative principles.

The drug was given as adjuvant therapy along with other treatment, as indicated in each case, i.e., psychotherapy and pharmacotherapy, such as phenothiazines, amine-oxidase inhibitors, and other psychotropic drugs, total push procedure, etc. The therapy had in each case been given for long periods of time (well over that in which even a late effect of the treatment could be postulated), without result, and with a steady downhill course, clinically. Feeding problems, debility, and weight loss were the usual accompaniments. The drug was given in doses of five milligrams, t.i.d., for three weeks, followed by one week without the drug, in repetitive courses not to exceed three to four courses. The results as noted in the chart below are presented:

CHART A

Pt.	*Diagnosis*	Age (Years)	Previous Response to Therapy	Duration (Years)	Current Response to Therapy Without Adjuvant*	Current Response to Therapy with Adjuvant†	*Further Course*
1.	Chronic Schizophrenic Reaction, Paranoid Type	45	Poor	15	Poor	Good	Pt. has held gain without need for further hospitalization.
2.	Chronic Schizophrenic Reaction, Paranoid Type	35	Poor	15	Poor	Excellent	Pt. has held gain without need for further hospitalization.
3.	Chronic Schizo-Affective Reaction	47	Poor	15	Poor	Excellent	Pt. has held gain without need for further hospitalization.
4.	Chronic Schizophrenic Reaction, Paranoid Type	28	Poor	5	Poor	Excellent	Pt. has held gain without need for further hospitalization.
5.	Chronic Schizophrenic Reaction, Paranoid Type associated with transient diabetes mellitus and possible diabetes insipidus	37	Poor	15	Poor	Fair	Pt. has had remission of symptoms with good improvement for short periods, but suffers relapses when external pressures are too strong for his ego strength.
6.	Chronic Schizophrenic Reaction, Paranoid Type	28	Poor	15	Poor	Good	Pt. has held gain without need for further hospitalization.
7.	Chronic Schizophrenic Reaction, Paranoid Type	40	Poor		Poor	Excellent	Pt. has held gain without need for further hospitalization.
8.	Chronic Schizophrenic Reaction, Paranoid Type	47	Poor	15	Poor	Fair	Pt. has had remission of symptoms with good improvement for short periods, but suffers relapses when external pressures are too strong for his ego strength.
9.	Chronic Schizophrenic Reaction, Catatonic Type	44	Poor	15	Poor	Excellent	Patient is at present attempting to return to his past occupation of dentistry after making an excellent adjustment in the hospital pharmacy. He had been unemployed for many years.
10.	Chronic Schizophrenic Reaction, Paranoid Type	38	Poor	15	Poor	Excellent	Although patient still finds it difficult to adjust for long period outside the hospital, his adjustment is so superior to his previous condition that his result must be rated as excellent.

Pt.	*Diagnosis*	Age (Years)	Previous Response to Therapy	Duration (Years)	Current Response to Therapy Without Adjuvant*	Current Response to Therapy with Adjuvant†	*Further Course*
11.	Chronic Schizophrenic Reaction, Paranoid Type	46	Poor	15	Poor	Good	Patient has held gain and is working on a rehabilitation program to aid in occupational adjustment.
12.	Chronic Schizophrenic Reaction, Paranoid Type	42	Poor	15	Poor	Good	Pt. has held gain without need for further hospitalization.
13.	Chronic Schizophrenic Reaction, Paranoid Type	42	Poor	15	Poor	Fair	Patient's hospital adjustment improved, but not of sufficient degree to enable adjustment outside the protection of the hospital environment.
14.	Chronic Schizo-Affective Reaction	37	Poor	15	Poor	Fair	Patient responded well for a short period; then developed a severe depressive reaction with an absence of schizophrenic trends.
15.	Chronic Schizophrenic Reaction, Catatonic Type	37	Poor	15	Poor	Good	Pt. transferred to another institution, but mutism, autism and retardation were ameliorated prior to transfer.
16.	Chronic Schizophrenic Reaction, Paranoid Type	24	Poor	5	Poor	Fair	Pt. transferred to another institution prior to completion of treatment.
17.	Chronic Schizophrenic Reaction, Paranoid Type	24	Poor	5	Poor	Excellent	Pt. has held gain without need for further hospitalization.
18.	Chronic Schizophrenic Reaction, Paranoid Type	61	Poor	35	Poor	Fair	Pt. has made a markedly improved hospital adjustment.
19.	Chronic Schizophrenic Reaction, Catatonic Type	37	Poor	15	Poor	Excellent	Pt. has held gain without need for further hospitalization.
20.	Malingerer-Sociopathic Reaction	37	Poor	15	Poor	Poor	Hospital adjustment unimproved.
21.	Chronic Brain Syndrome associated with alcoholism and schizoid personality traits	37	Poor	15	Poor	Fair	Hospital adjustment improved with amelioration of some of his schizoid character traits.
22.	Chronic Schizophrenic Reaction, Paranoid Type	36	Poor	18	Poor	Fair	Pt. has made a borderline adjustment outside the hospital.
23.	Chronic Schizophrenic Reaction, Undifferentiated Type	31	Poor	10	Poor	Good	Pt. has made a fair social adjustment outside the hospital.
24.	Chronic Schizophrenic Reaction, Undifferentiated Type	35	Poor	10	Poor	Good	Pt. has made a fair social adjustment outside the hospital.
25.	Chronic Schizophrenic Reaction, Paranoid Type	31	Poor	15	Poor	Excellent	Pt. has made a good social adjustment outside the hospital.
26.	Chronic, Pseudo-neurotic Schizophrenic Reaction	41	Poor	15	Poor	Good	Pt. has made a good social adjustment outside the hospital.
27.	Chronic Schizophrenic Reaction, Paranoid Type	34	Poor	10	Poor	Excellent	Pt. has made a good social adjustment outside the hospital.
28.	Chronic Schizophrenic Reaction, Paranoid Type	41	Poor	10	Poor	Excellent	Pt. has made a good social adjustment outside the hospital.
29.	Chronic Schizophrenic Reaction, Paranoid Type	31	Poor	5	Poor	Good	Pt. is at present making a good hospital adjustment. His lack of native endownment makes adjustment ouside the hospital problematic.
30.	Chronic Schizophrenic Reaction, Paranoid Type	39	Poor	15	Poor	Fair	This individual has been aided in making a satisfactory hospital adjustment, but strong sociopathic elements make adjustment outside the hospital difficult.

*Dianabol—Ciba; at least 3-month trial.
†Dianabol—Ciba.

Criteria for improvement were noted in the spheres of interpersonal relationships, ability to make decisions and do some type of meaningful work, and amelioration of symptomatology.

In a sense, the concept of *res ipsa loquitur,* i.e., the thing speaks for itself, was used. Because of the tendency of criteria for improvement in psychiatry to be so subjective and varied, the author felt that results to be significant, must be so evident from a pragmatic standpoint to all personnel concerned with the patients' care, as to be incontrovertible. "The results must speak for themselves." Because of space limitation only an outline of the salient factors in each case has been presented in the table. A full case presentation in many would have shown results that would be almost spectacular.

Those patients noted as "excellent" were those who were capable of leaving the hospital and adjusting on a plane of behavior which approached the average for those of simila background and culture. Those noted as "good" still had achieved a significant improvement in the spheres noted. In several cases, the drug appeared to cause an activation of psychopathological conflicts which temporarily appeared to aggravate the patient's condition. The concomitant improvement and ego strength, however, enabled one patient to work through his problems and achieve a good clinical result. (Pt. #12.)

In another case, the drug appeared to clarify the depth of regression and objectify the patient's behavior in such a way as to make the dynamics and the "side-show," defensive and escape nature of the patient's fantasies more evident. In exposing the artificial nature of the patient's symptoms, and their charade character, their value to him became increasingly less. He is improving markedly at the other institution where he was transferred (Pt. #16). In another case (Pt. #14), the patient developed a severe depression after having appeared to work through a good many of his schizoid dynamisms for a significant period. He is now responding to further individualized therapy.

In general, when the patients' ability to make decisions, feelings of adequacy, and increased courage improved; anxiety became less, ego strength became greater, and the patients appeared to form better interpersonal relationships with the therapists and their clinical groups. Rapport was stimulated and the patients' ability to take advantage of the total push program offered was increased to a remarkable degree.

Of 29 patients 20 schizophrenics improved markedly, the majority making gains that were sometimes spectacular, considering the severity of the illness, its chronicity, and previous resistance to other treatment alone. All but one patient (Pt. #20) had some degree of significant improvement. When Dianabol was added as adjuvant, it appeared to be the agent tripping the therapeutic scales in the balance. It appeared to have similar psychological effects to those reported associated with dehydroisoandrosterone administration; and besides, had the advantage of anabolic action. As one attractive possibility to explain its action from a physiologic standpoint, the increased appetite and subsequent increased caloric and protein intake may well have aided in bringing about an improved reaction to stress and improved adrenal response.[10,12,16,17] From a general adaptation standpoint, this factor may be of significant importance. However, the action of the agent at this stage of its investigation is so problematic that any further theorizing would only be conjecture.

It would seem that even with a conservative and wary evaluation, Dianabol has decided clinical value, and would merit further study as an adjuvant therapeutic agent. The drug's failure, therapeutically, in the case of the sociopathic reaction was expected because the outlined indications for its use were not present. It is to be stressed that the drug's application may not be indiscriminate. The postulated indications, psychological and physiological, presented above, should be used as criteria for its clinical application as adjuvant therapy; its value will be either substantiated or denied by more extensive experience.

Summary

1. Pertinent literature concerning the role of the endocrines, especially gonadal func-

tion, in psychiatric syndromes, was reviewed.

2. Rationale and indications for the use of Dianabol (Ciba), an anabolic steroid, and a structured evaluation for its application in schizophrenic reactions was given. Criteria for improvement and interesting observations noted with its use were postulated.

3. Results would seem to indicate it has encouraging value as an adjuvant to currently accepted treatment in schizophrenic reactions when the physiological and psychological indications given are followed.

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Antidepressive Drugs in the Treatment of Depression

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Depression is difficult to define in medical terms. It occurs in a variety of somatic and psychologic illnesses, differing in etiology and roughly divided into endogenous, reactive and neurotic. The various types of depressions do not respond equally well to the same treatment, and a varied attack should be made according to symptoms.

The new antidepressive drugs are effective in patients who do not respond to other methods of treatment. Although they are still under investigation, medical practice has established their use; the range of action, selective effects and general indications show that they are effective in relieving many patients of reactive and neurotic types of depression, as well as the endogenous. Antidepressive drugs and electroshock overlap in some respects and present remarkable differences in others. Some of the best results of imipramine and the hydrazine derivatives are obtained in patients who do not respond to electroshock. Future studies may reveal the precise indications for each of these methods, but since we know so little about the real causes of depression and the mechanism of its symptoms, the problem requires further study. Endogenous depression may reveal itself in various ways that have to be treated by different methods, and although the symptoms may be similar in many instances, the response to drugs and electroshock may be different.

Antidepressive drugs, like electroshock, may bring about full recovery, with no need of further treatment, whereas other instances require maintenance therapy, and some patients even get worse under treatment. The drugs may not be effective in the early phases of the illness but later become curative. Since there is a tendency toward spontaneous recovery from depression, the final treatment given in an individual case may seem to be the best.

In view of the integrated activity of the nervous system, physiologic as well as psychologic factors are intricately and mutually interrelated. In consequence of this, drugs with opposite pharmacologic actions may be effective on similar symptoms. Psychotherapy is sometimes effective in biochemical disorders and drugs may be equally potent in the neuroses. Due to this integrative activity, overcompensatory effects at different levels serve to bring about new equilibrium of cerebral activity that shows itself clinically as full recovery. The effect of these drugs on diseases with such varied etiologies suggests that they have overcompensatory reaction that may restore normal function, provided the level of nervous activity is not too profoundly involved. Mild endogenous as well as reactive depressions may recover promptly after the use of these drugs, while more serious cases in both types of depression are not responsive.

In order to obtain objectivity in the estimation of results, therapeutic trials are best done by the double blind method; however, in patients with psychiatric disorders, the lack of nosologic precision and the variation in severity and duration of the same illness, together with the great variety of contributing personal and social factors, make such methods rather cumbersome and difficult to apply. For instance, as a sedative phenobarbital ranges in dose from 0.01 to 0.6 grams, and the dose of chlorpromazine may range from 0.01 to 1.5 grams. Furthermore, the effectiveness of the drug may be largely influenced by the words that accompany it. Environmental influences are so important that the maintenance of a healthy, optimistic environment is preferable to subjecting the patient to an unknown, sterile and insecure environment. Maintaining an unchanged environment permits better estimation of the drug as the uknown variable.

The double blind approach often falls down because in serious illness the dosage has to be increased to the limits of individual tolerance, and this means a development of side

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effects. Furthermore, the new antidepressive drugs may act only after a latent period, meanwhile enhancing anxiety, insomnia and constipation so that it becomes imperative to treat the toxic symptoms by other means.

The severity of the clinical phenomena during the first period of observation does not indicate that drugs will fail. They are worth a trial, provided that adequate sedation is obtained with barbiturates, neuroplegics and treatment sleep. Such treatment alone, however, is not effective in the management of endogenous depression but serves merely to allay the suffering of patients before electroshock or the antidepressive drugs take effect.

Electroshock is used in patients with a good prognosis who apparently will recover quickly with it. Its use depends upon the urgency of obtaining a prompt recovery and on other social factors. Depressed patients who cannot work and who need to recover quickly are best treated with a combination of electroshock and antidepressive drugs. Antidepressive drugs may get quicker results than electroshock but they are not as predictable as to recovery, and three to six electroshock treatments definitely shorten the treatment of depression. Quite often the choice of methods can be decided by the family. The drugs are replacing electroshock in many instances. Four depressives with over two years of illness made the same kind of spectacular recovery with drugs that was previously achieved only by electroshock.

About two weeks of treatment with hydrazine derivatives, as well as imipramine, may effect full recovery from an attack, with no need of maintenance treatment. However, maintenance treatment is more frequently necessary than in patients treated with electroshock. There may be only symptomatic improvement so that the patients are able to resume their work but still do not feel well, but when this occurs electroshock is positively indicated.

Another important field has been opened by the antidepressive drugs, namely, the prevention of recurring depressions, a field in which we had no adequate treatment at our disposal previously. This effect is particularly good in patients subject to frequently recurring attacks, and imipramine or hydrazine derivatives in small doses may be used as a permanent cover. The same principle is employed in treating patients with attacks occurring in the spring or fall. Not all attacks can be prevented but at least new hope is given for these severely-tried patients. One patient in our experience with this method avoided her usual attack in November under preventive treatment but had a sudden attack the following March.

There is a possible analogy in permanent treatment of chronic depressive, asthenic and obsessive personalities similar to the situation that leads to the use of hypotensive drugs in essential hypertension. Studies with the antidepressive drugs in normal individuals have led to their application in combating various symptoms. Hydrazine derivatives, for instance, function as activators and disinhibitors, increasing the energy output. Imipramine, according to Grünthal, seems to produce a damping down of emotional reactions, possibly resulting in emotional flatness. We use hydrazine derivatives in asthenic, insecure, obsessive and phobic personalities as well as in fatigue and exhaustion states. In depression, with hysterical features and bizarre and theatrical behavior and anxiety, combining hydrazine derivatives with bromides has given spectacular results. However, people with neurotic frustrations can organize themselves against treatment of this kind, which then becomes one more link in the patient's life. Regarding the patient individually, we can often separate them into the sthenic and the asthenic types. We use imipramine in patients with depressive, obsessive, anxious features, particularly when sthenic characteristics are seen.

Hydrazine derivatives and imipramine seem to act on the same symptoms through opposite dynamic mechanisms and this has led us to frequently combine them. The hydrazines stimulate those with asthenic symptoms and imipramine sedates those with sthenic symptoms. This is the reason that symptomatic improvement with imipramine is more pleasant to the patients who at the same time feel sedated, while partial im-

provement with hydrazine derivatives may be rather unpleasant due to tension and excitement unless additional sedation is given. On the other hand, recovery through hydrazine derivatives is usually more pleasant to the patients, with the drawback of more frequent restlessness. Treatment, thus, has to be individualized, taking into account the body build, physical fitness, personality structure, type and intensity of symptoms, and special care with low initial dosage being used in neurotic oversensibility and lability. In such patients we may start with 25 mg. of imipramine at night and 25 mg. of iproniazid or 15 mg. of phenelzine or 10 mg. of isoxazolylhydrazine in the morning. In this initial phase neurotic oversensibility and vegetative lability are more marked with imipramine administration than hydrazine. Dosage is increased progressively by 25-50 mg. of imipramine every two days and by 10 mg. of isoxazolylhydrazine or 15 mg. of phenelzine a day or every two days. Usually we do not go higher than 150 mg. of imipramine, 30 mg. of isoxazolylhydrazine or 45 mg. of phenelzine. Portuguese people are rather small in body build and usually do not need higher doses.

Recording of weight, blood pressure and reflexes is done routinely, orthostatic hypotension being the most frequent symptom of intolerance. Hypotension, hyperreflexia and insomnia are indications for reduction of dosage, but these symptoms can be helped by treatment to maintain the desired dosage for as long as is necessary. In older people orthostatic hypotension must be managed carefully. If after two or three weeks we do not get a satisfactory response, dosage may be increased to the level of marked secondary symptoms, or electroshock may be considered. It has not yet been established how long it is necessary to continue the administration of these drugs to avoid the risk of relapse. However, the quality of the recovery, the stability of the personality and the history of past attacks are of value in determining the duration of such treatment. In full recovery, in cases of good prognosis, we stop treatment one month after recovery.

Therapeutic approach to depressions should be very flexible and all drugs at our disposal should be used and the dosage adjusted to the patients' complaints. In symptomatic treatment in ambulatory patients we use amphetamine or methylphenidate at breakfast and lunch in small to medium dosage in combination with amobarbital 0.05 to 0.2 three times daily after meals, and usually a barbiturate hypnotic at night. In more serious attacks with much restlessness and anxiety we add increasing doses of neuroplegics and bring the treatment to the stage of more or less continuous sleep.

This paper is based on the treatment of nearly 150 patients followed personally and conclusions are based upon 100 cases of endogenous depression; 80% were treated with a combination of imipramine and hydrazine derivatives, 52% of this group requiring electroshock; 54% were treated as out-patients and from the study of clinical history we believe that antidepressive drugs made it possible to maintain 20% of these patients on the outside. Endogenous depression showed an 82% recovery; in 16% the effect was only symptomatic, the attack running its usual course, and in the remaining 2% there was no effect whatever.

Summary

The range of action and selective effects of electroshock and antidepressive drugs are discussed on the basis of treatment of 150 patients. There is a large group of patients with endogenous depression with a good prognosis that will respond equally well to any of these treatments. The best clinical results in the whole group were obtained by the combined use of electroshock, antidepressives and symptomatic treatment. The selective indications of hydrazine derivatives and imipramine are discussed. Recurring depressions, chronic depressions, asthenic, insecure and obsessive, phobic, anxious and oversensitive personalities may need permanent treatment with these drugs.

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Eryptamine, A New and Safer Antidepressant Chemical

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Antidepressant chemotherapy is replacing electroshock therapy in many clinics as the treatment of choice for mental depression. In my own practice, during the first year of introduction of the amine oxidase inhibitors (1957), my use of shock therapy was reduced 55% and in the third year following introduction of the antidepressant chemicals (1960), the amount of shock therapy given in my office was reduced 78%. The major part of the 22% continuing to receive EST are ambulatory schizophrenics not adequately controlled by tranquilizers. However, there are still occasional depressive patients in whom it is not possible to induce remission by chemotherapeutic means.

A brief explanation of the mechanism producing an euphoriant effect in a mentally depressed person, by chemical agents capable of inhibiting the monoamine oxidase enzyme will help to clarify the advantages of their use. It has been postulated that by inhibiting monoamine oxidase, these synthesized chemicals increase brain levels of serotonin, epinephrine and norepinephrine. The enzyme monoamine oxidase inactivates serotonin as shown in Figure 1.

When this metabolic process is prevented or reduced by MAOI compounds, the retained serotonin and catechol amines induce a return of normal well being—that is, the elimination of mental depression. There occurs a reduction in the release of adequate amounts of serotonin.

Etryptamine (Monase) is a newly synthesized MAOI.

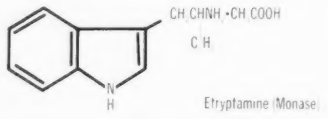

Figure 2.

In contrast to other monoamine oxidase inhibitors, etryptamine acetate shows no effect on the enzyme system 5-hydroxytryptophane, having no effect on the formation of serotonin (Figure 3).

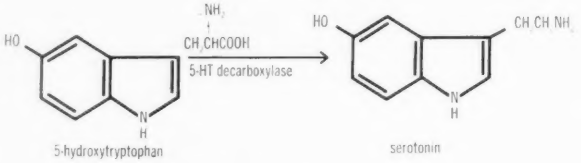

Figure 3.

The compound should produce higher serotonin concentration in the brain than related MAO inhibitors because of this specific effect of inhibition of the enzyme which de-

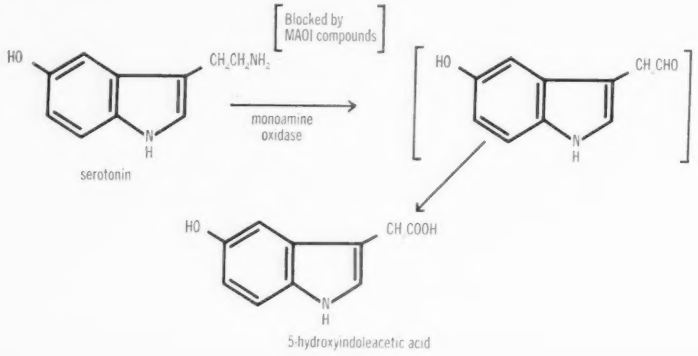

Figure 1.

stroys serotonin without action on the system producing the agent.

This newly synthesized antidepressant indole with the major characteristics of an amine oxidase inhibitor but with certain advantages over the earlier ones is a non-hydrazine compound possessing certain advantages over other psychic energizers. The incidence of hypotension is greatly reduced, and when hypotension occurs, it is minimal. This alone should command attention. Severe hypotension has occurred with iproniazid, pheniprazine, Parnate, and less frequently with Nardil or Niamid. Such hypotension usually persists for 10 to 14 days and may require ACTH gel. mg. b.i.d. plus cortisone 25 mg. t.i.d. for a time to manage it.

Etryptamine is metabolized and eliminated from the body within 24 to 48 hours. Therefore when side effects such as hypotension occur they are of brief duration. This is a great advantage over the long lasting side effects of other psychic energizers. Whenever hypotensive effects (from any of the earlier MAO regulators) appear, they persist intermittently for at least two weeks, because of their accumulation factor. This is practically non-existent with the new antidepressant. Whenever hypotensive effect developed, the earlier MAO drugs had to be discontinued and Ephedrine or cortisone and ACTH administered in order to avoid serious side effects. This meant the loss of antidepressant chemotherapeutic effects for two weeks or longer at a time when the depression and suicidal potential was greatest. Certainly hypotension is an impediment to efficient therapy.

However, the decrease or elimination of hypotensive effects with etryptamine eliminates the dangers caused by hypotension. By reason of this very fact inducing remission is safer and speedier. The threat of suicide is ever present, and the painful disconsolation which the patient experiences is most distressing to the family, as well as the nurse and doctor in attendance. However, the inconvenience of a longer period of therapy may be acceptable in exchange for the elimination of disturbing side effects.

One may also speed up the induction of remission by adjunctive booster therapy if improvement seems slow with etryptamine alone. The addition of iproniazid (50-75 mg. daily) or pheniprazine (6-9 mg. daily) will induce more rapid remission, but at the same time introduces the probability of ultimate hypotensive effects which must be watched. However, the smaller dosage of booster used makes it less likely that serious hypotensive effect will develop. Isocarboxazide, phenelzine or nialamide may be used as boosters.

Recently the use of Pyridoxin as a "booster" has been tried on the theory that addition of extra norepinephrine could have booster effect. This still is on an experimental basis and no conclusions have been drawn thus far. Evidence presented by Rosen's animal research strongly suggested that Pyridoxine could alleviate liver alterations which we have ascribed to the ingestion of MAO inhibitors.

It is certainly necessary to carry out serial transaminase determinations when etryptamine is administered since cirrhosis or malignancy may be unearthed by the first pretreatment SGO-T and subsequent serial tests for comparison. A previous report gives details regarding transaminase findings.

One must secure more frequent transaminase reports whenever "booster" chemicals are administered since there is greater likelihood of an elevation developing under these circumstances. The safest guides for dosage in antidepressant chemotherapy are the sitting versus standing blood pressure determinations and serial transaminase tests.

In the table it will be noted that "good," "very good" or "excellent" response was attained in 80% of 76 cases observed in this study. It is believed that many patients recently started on the chemical will attain higher response levels.

An "excellent" response indicates complete remission; a "very good" response, partial remission, i.e., marked improvement with need for continued psychotherapy and chemotherapy and a "good" response means moderate decrease in the depressive reaction, with the expectation that continued inten-

TABLE I
Response to Treatment with Eryptamine Acetate

Diagnosis	No. Pts.	RESPONSE: Excellent	Very Good	Good	Fair	Poor
Alcoholism with Depression	3		1	2		
Anxiety Neurosis with Depression	5		2	3		
Depressive Symptoms	2				2	
Hypercholesterolemia with Depression	1		1			
Involutional Melancholia	8	1	2	3	1	1
Malnutrition with Depression	1		1			
Manic Depressive; Depressed	18	5	6	5	2	
Reactive Depression	30	5	7	10	7	1
Schizo-Affective Depression	8	1	2	3	2	
Totals	76	12	22	26	14	2

sive chemotherapy and psychotherapy will induce full remission.

Case Example

Consider this case of neurotic invalidism. Patient's severe asthenia was so deep and disabling that she was utterly incapable of caring for her two teen-age children at home. Hospitalization was necessary. Hopefully, first one and then a second well-known energizer was tried, but in each instance severe hypotension developed soon after beginning treatment. A period of time was lost with cortisone-ACTH treatment to overcome the hypotension.

After a second energizer had to be discontinued, etryptamine was given even before the hypotensive effect of the previous drugs had receded. The result was dramatic as this bedridden, depressed invalid got out of bed and became ambulatory, exploring various parts of the hospital only a few days after etryptamine therapy was initiated. She left the hospital shortly after and has carried on her household responsibilities and her social life satisfactorily. She bowls twice weekly and reports for check-ups and psychotherapy regularly. Transaminase determinations continue to be normal. This can be considered an excellent response to etryptamine in a difficult case—a remission induced on less than two weeks' therapy.

Other investigators who have used this new antidepressant have reported interesting clinical experiences. DeJong and others described this interesting case:

A 73-year-old diabetic whose confusion, anorexia and indolence were producing rapid deterioration, was placed on etryptamine 30 mg. daily. Improvement occurred in a week with resumption of adequate food intake and elimination of confusion. When the drug was discontinued in two weeks, the patient relapsed. Resumption of etryptamine again induced improvement and patient is now maintained satisfactorily in remission on ethyptamine.

C. W. Hock studied 44 patients with gastrointestinal disease complicated by depression and reported good to excellent response on etryptamine in 96% of patients with moderate to severe depressive symptoms and in 39% of those with mild to moderate depression. Most depressed patients noted increased energy and a general feeling of well-being after taking this drug. However, in five other cases *without depression* no change was reported. He described one man who felt as if he were falling after standing for a short time. His B.P. was 135/85 when sitting, but dropped to 96/60 when standing. This illustrates the importance of both sitting and standing B.P.'s.

In geriatric patients, over 80 years of age, Kiessling found that 76% improved on etryptamine. The symptoms frequently present were: depressed mood, apathy or inertia, pessimistic outlook, self-abasement, anxiety, tension or delusional ideas.

Brockbank found that the majority of depressed women, some pre-natal depressions and others post-partum, spoke enthusiastically of sharp increases in energy level while on etryptamine therapy. Some insisted they could accomplish more, and several stated they had never felt better. There was a stimulating effect on mind and mood, a feeling of well-being, and an increase in appetite, weight and vitality. Dosage ranged from 10 to 30 mg. daily as a single morning dose.

Most striking is the report of Scherbel of Cleveland Clinic who demonstrated the advantages of antidepressant chemotherapy, particularly the MAO inhibitors as adjunctive therapy in rheumatoid arthritis. He treated 62 patients suffering from rheumatoid arthritis and depression. Of these 51 received etryptamine in doses of 15 to 75 mg. daily. They manifested improvement

by increased energy, elevation of mood, heightened sense of well-being and occasionally increased muscular relaxation. The response was usually evident between the second and fifth days of treatment. In six patients of this group nervousness and drowsiness appeared and in five others the development of nausea, anorexia, bloating, dryness of mouth, headache or coarse tremor necessitated discontinuation of the drug.

In 15 hospital patients, B.P. determinations in reclining and standing positions were obtained four times daily. In two, a mild postural effect was observed seven days after treatment was started.

Scherbel concluded that etryptamine is a valuable addition to the growing list of antidepressant agents because it possesses a number of desirable features— rapid onset, greater selectivity of action, relatively short duration of action, minimal effect on B.P. and a low incidence of toxic reactions. However, comparison of antidepressant activity with hydrazine analogues, suggested to him that it is less effective as an antidepressant agent. One should note his final comment that because of its less toxic properties, "this drug could become the antidepressant agent of choice in the treatment of mild to moderate depression which is often unrecognized but nevertheless is a frequent accompaniment of numerous clinical diseases."

While it may be considered that this drug is less effective in severe depression than some of the other monoamine oxidase inhibitors, the fact remains that it will induce remission in a moderate proportion of severe cases. This is important since it is safer to administer. The more potent drugs may, if necessary, be employed thereafter.

Side Effects

A note of caution is suggested by Chogich who prescribed 30 mg. daily for a woman who took it in a single dose. One half-hour after she experienced severe nausea, vertigo and near syncope. She was unable to walk or stand without assistance for approximately 12 hours and vertigo was present but to a lesser extent for almost 24 hours. She also noted extreme somnolence during this period. I have encountered no case confirming Chogich's experience, although I have given many patients 25 mg. b.i.d. or t.i.d. initially.

Three cases in this series reported quite tranquilizing effects with doses of 20 to 25 mg. in the early weeks of treatment. Merely changing the time of administration to 6 P.M. and 10 P.M. eliminated the difficulties and dosage level was not altered. During a 10-month period no patient has developed a full or partial black-out such as observed in patients taking other energizers. Asymptomatic and temporary transaminase elevation was observed in only two cases and these reverted to normal soon after discontinuing the drug. There was no elevation after resumption on a smaller dosage.

Summary

Etryptamine adds a desirable chemical to the list of antidepressant compounds. This drug will produce remission in most mild or moderate depressive disorders. In the severe depressions it may be necessary to supplement etryptamine temporarily with a booster MAO inhibitor of greater potency. This will necessitate more frequent transaminase testing and blood pressure recordings while the booster is administered. As soon as remission is under way, the booster can be reduced or stopped while etryptamine is continued. Side effects are far less frequent with this compound and of less severity in the rare cases observed.

Author's Note: Supplies of this new chemical etryptamine were furnished for this study by the Upjohn Co., Kalamazoo, Mich., under the tradename, Monase.

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DISCUSSION OF PAPER OF DR. THEODORE ROBIE

WALTER M. ANGLIN, M.D.*

Etryptamine acetate (Monase) was developed in the Research Laboratories of The Upjohn Company approximately August 1959. Interest was focused on this compound because our screening tests revealed that in vitro studies and animal experiments it was a potent, but brief acting inhibitor of the enzyme monoamine oxidase. Furthermore, it was specific in its inhibition of this enzyme and did not affect other enzymes in the tryptophane and tyrosine metabolishm series. The indole structure of the drug offered prospect of being safer and better tolerated than antidepressants then available. In consequence detailed toxicity studies were completed and preliminary activity studies were initiated. These studies showed etryptamine to be safe, well tolerated, and offering promising antidepressant properties. Full clinical trials were then undertaken to probe its limits of usefulness.

In over one year of clinical study more than 4000 cases have been reported and it is estimated that 7500 to 10,000 patients are, or have been, under treatment with the compound. More than 500 of these patients have received the drug for six months or more and serious side effects or evidences of serious drug toxicity have yet to be recorded. Recent studies have cast doubt upon enzyme inhibition being the essential or most important mechanism of its action and current thinking leans toward the notion that direct stimulation of portions of the nervous system are more probably responsible for the observed antidepressant actin of etryptamine in clinical practice.

This compound has been found useful in depressive disorders in whatever guise they may appear. However, depressive conditions with prominent anxiety features or marked elements of agitation often require the concomitant use of an appropriate tranquilizing compound or EST. Overall, one may summarize the indication for etryptamine by saying that it is useful in any condition or state in which mood elevation may be expected to be directly or indirectly beneficial.

Usual dosage is 15-75 mg. daily, although some investigators are routinely using doses of 100-150 mg. in more profoundly depressed patients. The recommended dose is 30-60 mg. daily because, in this range, side effects are rare and a majority of patients can be expected to benefit. Overstimulation of the nervous system (manifested by restlessness, increased anxiety, insomnia, or activation of an incipient or latent psychosis) and gastrointestinal upset are more commonly seen when 75 mg. or more are given as the daily dose. Other side effects are not so completely dose-related. These include an occasional case of orthostatic hypotension (only 25-30 cases have been reported to date), skin eruption, and edema of the extremities (2 cases). Potentiation of concomitantly-administered drugs has been reported both with favorable implications —such as the booster drug use advocated by Dr. Robie and the rapid elevation of patients from very deep depressive states to near manic levels within two to three days which has been cited by other investigators. On the other hand, potentiation of hypotensive action of hydrazine amine oxidase inhibitors has been reported and care in any combined drug administration is certainly strongly advocated.

The over-all incidence of side effects with etryptamine is not above 5% in the studies reported thus far. The agent has been extremely well tolerated and full six month studies in human volunteers receiving doses of 30-60 mg. daily failed to show any sign of liver toxicity, or of changes in the blood picture or urine. Independently done studies by more than a dozen investigators involving 500 patients failed to show drug-connected alterations in any laboratory profile. Studies designed to test tolerance limits failed to show toxicity or lasting side effects following administration of 100, 200, and 300 mg. daily over sequential 10 day periods. And, finally, three patients who attempted suicide with etryptamine were unsuccessful despite the fact that one patient is believed to have ingested upwards of 1500 mg. of the compound.

The last, but perhaps most cogent point concerns the results achieved with the drug. Depending upon dose employed, condition being treated, and other variables, one may expect salubrious results in between 60 and 80% of a properly-selected patient group. Some benefit may be seen within three to five days of initiation of treatment, but optimum results require two to three weeks or more of treatment in most cases. As already mentioned, use of booster medications may be useful in hastening response.

*From The Upjohn Company, Kalamazoo, Mich.

Uses and Abuses of Tranquilizers in Chronic Illness

JOHN L. OTTO, M.D.

Recent reports would indicate that the American public is spending approximately 300 million dollars per year for tranquilizing drugs. The Medical Records Committee of John Sealy Hospital reviewed 100 consecutive charts of recently discharged patients from all services and found that irrespective of age or diagnosis, 48 per cent of all hospital patients receive tranquilizers. Of those receiving tranquilizers, 30 per cent were getting two or more different types. Some of these patients were receiving identical or very similar drugs under various trade names. It is apparent that the avalanche of new drugs in this field has reached such proportion that the physician is unable to keep up with knowledge of the properties and side effects or even the indications for use of each drug. It is small wonder that we fall easy prey to the fast talking detail man who promises miracle results with no side effects, except, occasionally, those mentioned in small print on the brochure.

This vast family of new drugs is generally divided into two main groups: the tranquilizers or ataraxics and the antidepressants or thymoleptics. Those drugs differ from the more familiar sedatives; i.e., barbiturates, chloral hydrate, paraldehyde, alcohol and bromides, in that they do not reduce cerebral oxygen consumption and do not depress the cerebral cortex. Their action is at subcortical levels, and they do not cause a descending depression of the activity of the central nervous system.

These potent drugs are not without drawbacks and they have been misused and abused almost since their introduction. Aside from the common physical side effects of rash, parkinsonism, tics, hypotension, convulsions, jaundice and ataxia, there are other bizarre and subtle side effects more insidious than the original illness.

During the early period of the tranquilizers psychiatrists in private practice frequently heard the remark that these miracle or wonder drugs were going to put them out of business. Just the opposite has happened. We are seeing more and more patients for the complications of these drugs, just as we have been treating bromide, alcohol, amphetamine and barbiturate toxicities.

Some examples of these problems as seen at John Sealy Hospital:

A 19-year-old married woman had had a D & C done elsewhere one week before. She was admitted to the hospital in opisthotonos, with an admitting diagnosis of tetanus. Fortunately, the neurologist obtained the history of ingestion of prochlorperazine for nausea during the past few days. The tonic contractions disappeared in about 24 hours.

Within one week, two girls were admitted with a diagnosis of encephalitis, one following mumps and the other following a flu-like infection. Both girls were drooling at the mouth, had marked athetosis, lethargy, and were unable to talk. Both had been given phenothiazine derivatives for restlessness and insomnia during their initial illness. Unfortunately, on admission, these drugs were continued, their symptoms got worse and it was only after the neuropsychiatrist saw them in consultation that the true nature of their illness was recognized. Tranquilizers were discontinued, Artane substituted and the symptoms disappeared in about 48 hours.

A 50-year-old man's history indicates that he had been a periodic alcoholic for most of his adult life, using as an excuse for his drinking asthma and chronic bronchitis. In spite of his drinking, he had been able to earn an adequate living up until about three years ago, when his family doctor prescribed meprobamate. Since then, he has averaged 50-75 tablets a day and has not been able to work at all. On admission, he had all the characteristic signs of a chronic alcoholic: ataxia, slurred speech, defective memory, confusion and unpredictable behavior. As his wife expressed it: "He's just like he was when he used to drink, except he doesn't smell like a drunk, and he hasn't sobered up in three years. He tried to quit taking the pills once and went into convulsions." On a gradual reduction program, with anticonvulsants added, he slowly improved over a period of one month.

Some patients become stimulated and agitated on tranquilizers. Unfortunately, these

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Paper read May 13, 1960, at the Annual Meeting of the New Mexico Medical Society in Albuquerque, New Mexico.

patients are usually told to double their dosage or another variety is added or substituted. We are seeing more and more of this category of patients. Characteristically, they are unable to sit still or lie down, and find relief only by walking. Recognition of this as a toxic symptoms has kept many patients from electroshock, since, formerly, they were thought of as agitated depressions.

The primary purpose of the tranquilizer is to reduce anxiety and tension, thereby making the patient more comfortable and more accessible to psychotherapy. This property has been most beneficial; but, along with the reduction of anxiety, we may and do find some undesirable effects, as in the instance of this husband of an obsessive compulsive patient who reported that he had taken his wife off that "slap-happy" medicine. Where formerly she had kept a very neat home and prepared good meals, he now found the house a mess, the food burned and unpalatable, and his wife still in a housecoat when he got home in the evenings.

Our anxieties keep us going and force us to meet our responsibilities. It is difficult to do psychotherapy with an over-tranquilized patient, since the stimulation of a certain amount of anxiety is necessary to motivate the patient to action to solve his various problems and face the world. Prolonged tranquilization increases dependency on the drug or the doctor and robs the patient of his will to fight and regain his health. Over tranquilization may also take from the patient his finer coordination and finer critical judgment.

An example of this is a middle-aged secretary who was noted for her accuracy, speed in typing, ability to make decisions for her employer and get out a prodigious amount of work. During an extended period of family crisis, she was placed on meprobamate for insomnia and anxiety attacks during the day. These symptoms were markedly improved, but it was noticed by her employer that her efficiency was steadily declining, to the point where he could no longer trust her decisions, depend on her accuracy or even count on her getting important reports out on time. He was most perturbed because these failures didn't seem to bother her in the least. The drug was discontinued, a mild barbiturate was given at night, and, after several psychotherapeutic sessions, her former efficiency was restored and the symptoms abated.

It might be concluded that we are opposed to the use of tranquilizers. This is far from true. The development of psychiatric drugs has ushered in a new era in psychiatry. Many chronic psychotic patients who have never responded to any previous treatment have improved on these drugs to the extent that they are able to live at home again. We have been able to dispense with insulin and electric and other types of coma therapy in many of the acute psychotic illnesses. Lobotomy is almost a thing of the past and, we hope, will soon be totally discarded. We no longer have "disturbed" wards with destructive, combative, excreta careless patients in seclusion. The cost of caring for this type of patient has been greatly reduced. The savings on these floors in money and personnel pay for all the drugs used.

When are tranquilizers indicated, particularly for use by the general practitioner?

1. Acute anxiety situations:
   a. Acute crisis in the environment.
   b. Marriages.
   c. Death.
   d. Divorce.

   The drug should be discontinued as soon as patient adjusts. Prescriptions should be in small amounts and non-refillable. Miltown, Equanil or Librium would be the drugs of choice.

2. Chronic anxiety states:

   Use as a crutch until psychotherapy in the form of ventilation, examination, explanation and reassurance can be accomplished.

   Equanil, Librium or Mellaril may be used.

3. Chronic physical illnesses accompanied by anxiety:

   Phenothiazine derivatives, Librium, Doriden, suggested.

4. Mild depressive states:

   Use one of the antidepressants, such as Tofranil, Nardil, Niamid or Marplan, in combination with Miltown, Equanil or Librium if anxiety is an accompanying symptom. A long acting barbiturate can be used for sleep. These patients must be followed closely for the appearance of toxic side effects, deepening depression or the appearance of suicidal thoughts, in which case they should promptly be hospitalized for protection and specific therapy.

5. Control of the acute psychotic states:

Until patient can be hospitalized or placed under the care of a psychiatrist, Thorazine or Mellaril, may be used.

6. Maintenance therapy for chronic psychotic and fixed obsessive compulsive psychoneurotic states:

Librium, Mellaril, Thorazine are indicated.

7. Chronic organic mental reactions:

a. Mild senile problems.
b. Overactive mental defectives.
c. Destructive brain damaged children.
d. Disturbed epileptics.

Thorazine, Librium, Mellaril, Equanil, advised.

8. Aggressive behavior disorders in children and adolescents:

Miltown, Equanil, Librium, suggested.

Many of the chronic psychoneurotic patients do much better on the mild barbiturates, such as elixir of Phenobarbital, Alurate or Donnatal, if supplemented with supportive psychotherapy. These preparations have the advantage of being:

1) Less dangerous, 2) Less expensive, 3) More predictable, 4) Easier controlled, and 5) Fewer side effects.

Tranquilizing drugs have no place in the long term care of alcoholics. The goal here is no drugs—no alcohol. In spite of the claims of the manufacturers, these drugs are soon abused by the alcoholics and become a worse problem than the alcohol, because of the more serious side effects. They have limited value in the management of the acute withdrawal symptoms of alcoholism. Fluids, vitamins, barbiturates and anticonvulsives do a much better job.

In closing I would like to quote a statement made by Dr. Titus H. Harris at a recent symposium on psychopharmacology:

"Even more important, is the effect of the discovery of these drugs on research, with a revival of interest in the biochemical and neurohormonal constituents of the brain and their influence on behavior. The influence on behavior of such substances as serotonin, novo-adrenalin, enzymes and amines is being investigated intensively, and never before has there been such hope that the basic cause of mental illness may be finally understood."

Group Therapy with LSD-25

(A Preliminary Report)

BERTRAND TENENBAUM, M.D.

The use of d-lysergic acid diethylamide (LSD-25) and other psychotomimetic drugs has only rarely been used to facilitate group therapy. The peyote cactus is chewed by Indians of the Native American Church in a religious-social group setting.[1] Likewise, the Mixeteco Indians utilize the psilocybe mexicana mushroom in a group ceremony. In modern psychiatric practice, LSD-25 has been employed to advantage in group situations by van Rhijn.[2] He mentions the interaction of the participants influencing the course of treatment.

Ten male sex offenders who had not responded well to conventional group therapy were selected for treatment with LSD-25 in a group setting. They had previously used intellectualization and denial to avoid facing conflict areas on an emotional plane. The group was comprised of two rapists, four male pedophiles, two incestuous female pedophiles and two exhibitionists. Alcoholism was a problem with four of these patients and previous diagnoses of various character disorders were common. Recidivism of their sexual deviations was the rule. Their ages ranged from 20 to 57. Physical examination was essentially negative except for one patient who had experienced multiple cerebrovascular episodes with partial residual paresis, and another who had had a gastric resection for peptic ulcer.

Method

Group therapy sessions were begun by giving each patient 50 mcg. of LSD-25 by

From the Atascadero State Hospital, Atascadero, California.

mouth. At weekly intervals the dose was increased until maximum therapeutic involvement was obtained or a maximum level of 300 mcg. was administered. In most patients dosage levels around 100 mcg. were most effective in facilitating therapy. Higher dosages generally produced a too severe disruption of ego function. Tape recordings were made for use in later discussion periods. Considerable and "gutty" interpatient exchange was the feature which distinguished the LSD-25 group from earlier, conventional group therapy. By the third hour after ingestion, when the drug action was at its height, direct therapeutic efforts were made to face the patients with matters which had previously been evaded or rationalized. Non-LSD-25, interval sessions were regularly held to develop and re-emphasize the emotional insights gained during the drug experience.

In this pilot evaluation, therapeutic goals were directed toward symptom relief and outward behavior change rather than complete personality realignment. From this standpoint the results were most gratifying. For example, three of four chronic onychophagics gave up this symptom after three months of treatment. As others[3-5] we found that LSD-25 facilitated communication and empathy. Intellectual defensiveness was decreased, resistiveness to facing painful, repressed memories was reduced, and an emotional "living through" of traumatic material was not uncommon. Recall was phenomenally enhanced; in one instance a memory trace of an event which had occurred at four weeks of age was remembered, and later validated through correspondence with the parents of the patient.

Two of the homosexuals in the group have abandoned this practice. In an institution of this sort any change in these practices is readily known and reported. The dynamics of the homosexuality of the two patients is of some interest. One of them, K.L.H., age 33, is a patient who had strong death wishes toward his father. He has indulged in homosexual activities for some twenty-five years. When the patient's father actually died during his youth, the patient became guilt-ridden over this and his fantasied maternal incestuous gratifications which would have required the death of his father. He renounced feminine sexual object choices for this reason and because of the guilt feelings over the death wishes which had been magically granted. When, under LSD-25, he recognized the role which his childhood fantasies had played, he has, temporarily at least, relinquished this symptom. The second homoerotic individual, S.F., age 47, as an infant, would nurse at his mother's breast while masturbating her clitoris with his foot. This occurred repeatedly during which the father observed this play and seemingly consented and approved. This conditioning resulted in depreciation of the value of the female object and a bisexual orientation with loose, polymorphous, perverse, hedonistic sexuality. Recovery of the memory under LSD-25 led to an emotional recognition and understanding which reduced the homosexual pressures and homosexual pedophillic drives.

B.J.A., 35 years of age, had been committed to Atascadero State Hospital for molesting his daughter. In addition, he had been troubled with arthritis for ten years consisting of stiffness of the heels and knees. During one of the LSD-25 sessions, he recalled that he had habitually placed his foot in his grandmother's vagina while he nuzzled her exposed breast on many occasions until he was six years old. He, himself, correlated the libidinal significance of this memory to the stiffness of his heel. He no longer requires treatment for this condition at the arthritis clinic.

Insight panic is, surprisingly, easily handled during group therapy with LSD-25 as noted in the case of C.G., age 20, rapist. This individual came to realize his identification with his female victims and could see his masculine protestation as a compensation for fear of his own unconscious femininity. This was achieved without any lengthy overt psychotic episode as one would anticipate in drug-free therapy. The experiencing ego is allowed to relive the traumatic event without disruption because observer ego function is split away, sometimes to the point of depersonalization.[4] Thus, ego-alien unconscious

material is able to come forth without decompensation.

The unusual properties of this drug seem to be further enhanced by the group therapy process. The patients are more perceptive of each other as individuals. They are sensitive to "phoniness" and defensiveness in other members, and do not hesitate to point

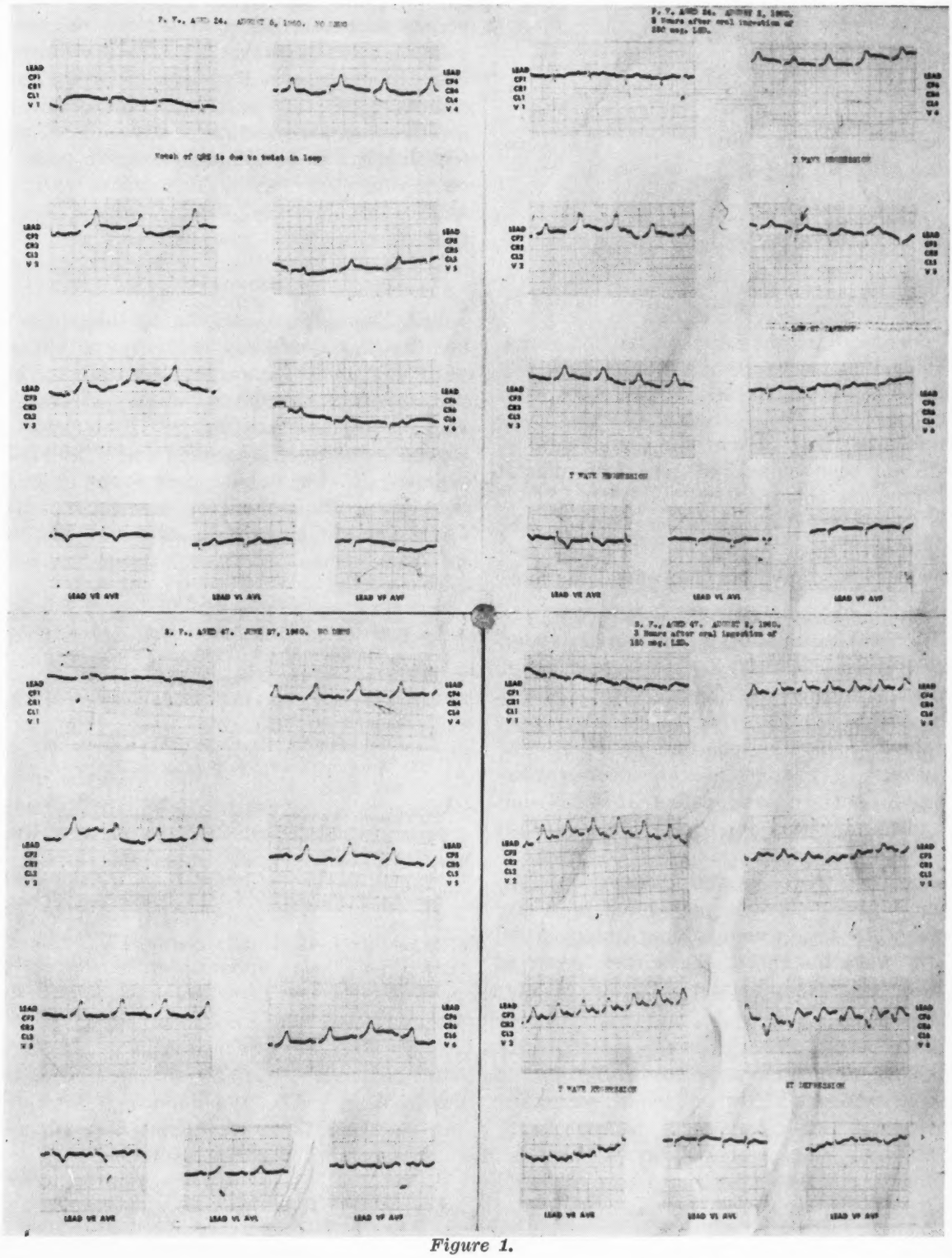

Figure 1.

out rationalizations and evasions. For these sociopathic individuals with gross disorders of sexual control, the insights gained during a state of intense emotionality appears particularly meaningful.

Of the ten patients in the group only one failed to respond altogether favorably to LSD-25 group therapy. This was a 44-year-old compulsive exhibitionist who had been treated in this institution on several occasions without success. His passive, receptive activity in prior therapeutic endeavors without drug facilitation was only slightly influenced by LSD-25, and although there was some movement, his basic infantile, oral dependent personality structure remained intact.

This pilot study has been extended, and the encouraging initial results have been confirmed in other patients. It should be emphasized that the chronic sexual psychopath has been considered extremely difficult to influence therapeutically. With LSD-25 the therapeutic process is accelerated. The therapeutic goals remain the same as in conventional therapy, but movement is more rapid.

Physical examinations and serial laboratory determinations were performed on all patients during treatment with LSD-25. Physical side effects due to the drug were minimal, confirming the findings of others.[6] However, a change in the electrocardiographic pattern was detected which has hitherto not been reported. This consists of T wave regression and S-T segment depression, as noted in the illustrations. Although these changes may have been secondary to the accompanying tachycardia, there were instances where they occurred without increase in heart rate. In patients who complained of precordial distress and palpitation, the T wave regression and S-T segment depression was most pronounced. One 33 year old patient who had been given 275 mcg. of LSD-25 had persistent complaints of precordial distress, dyspnea and faintness. There was no prior history of cardiac involvement. His electrocardiogram demonstrated this pattern. Further drug treatment was discontinued. These EKG effects appear to be minimal, but due to this finding we have excluded patients with a history of coronary disease from LSD-25 therapy (Fig. 1).

Summary

LSD-25 has been used during the past six months in a group psychotherapy situation with ten male character disorders. The drug appears to have enhanced and accelerated therapeutic activity. EKG abnormalities consisting of T wave regression and S-T segment depression have been found. A prudent contraindication for treatment with LSD-25 might be patients who have angina or other forms of coronary disease.

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Iatrochemistry, Iatrophysics and Iatropsychology

JEROME M. SCHNECK, M.D.

In seventeenth century medicine there developed a trend characterized by stress on chemical ideas. The terms iatrochemistry and iatrochemists came into being. The Leyden clinician Franz de le Boe (1614-1672), known also as Sylvius, represented this school. Regarded at times as its chief, he had predecessors in its development. One was Paracelsus (1493-1541); another, Jan Baptista van Helmont (1577-1644). "They pressed chemistry into the service of medicine."[1]

The iatrochemists had their counterpart in the iatrophysicists, known also as iatromechanists and iatromathematicians. Their ideas reached a high point in Giorgio Baglivi (1668-1707). Sigerist believed his opinions were extreme. "He regarded the human organism as a sort of tool-chest." Yet he was a good clinician. While Baglivi is accepted as an outstanding physician of the iatrophysical school, his predecessor Giovanni Alfonso Borelli (1608-1679) is regarded by Major as the founder of the faction.[2] Borelli's astute approach to physiological problems by physical methods had much effect on medicine of that period.

In mid-twentieth century a high mark was reached in the growth of what I would term iatropsychology. To parallel Sigerist's description of iatrochemistry, iatropsychology is medicine in which psychological concepts predominate. Iatropsychology finds its special expression in psychiatry, consistent with developments in medical specialization, but its impact has been felt in many areas of medical practice. An indication of this influence is the focus on "psychosomatics." Its greatest recent impression on medicine stemmed from the growth of psychoanalytic concepts. There is also the influence of psychobiology. The predominant weight of Sigmund Freud (1856-1939) and the psychoanalytic school is fundamental in iatropsychology today.

I believe one may say that the iatropsychologist deals mainly with psychological concepts in medical practice. His medical training and knowledge reenforce his judgments and govern his activities. His interests lie basically in psychological techniques but he is reasonably concerned with other areas of medical development such as physiological and chemical researches and applications although he focuses his own procedures essentially on the psychological. The extreme iatropsychologist is concerned little with ideas or advances in any area of medicine other than the psychological in theory and practice. In this respect he is rather detached. The extremist in iatropsychology had his counterparts in iatrochemistry and iatrophysics. It is conceivable that a strong revival of iatrochemistry and iatrophysics may yet evolve.

Iatropsychologists today have precursors, but iatropsychology probably never reached a height comparable to that it enjoys now. George Ernst Stahl (1660-1734) with his theory of animism was an example of movement away from iatrochemistry and iatrophysics.[3] This reaction has been viewed as part of a general trend away from the materialism of his time. Stahl was concerned with the influence of the soul on biological processes. This concept appears to have iatrochemical roots while pointing toward iatropsychology. Stahl has a place also in the history of chemistry. He proposed the phlogiston theory. It has been suggested that his medical following was based probably on the similarity of his general medical views to those of Thomas Sydenham (1624-1689). At the same time his animism appealed to physicians who tended to be anti-materialistic. His doctrines are seen often as preliminary to the growth of vitalism and significant in the development of psychiatry. The connection with Sydenham is perhaps consistent with the general psychological trend more than is usually recognized. Elsewhere I stressed consideration of Sydenham's role in the history of psychological medicine by centering attention on his rec-

ognition of the extensive role of psychological elements in many types of illness encountered in active clinical practice.[4] Furthermore, although he spoke of "animal spirits," there are essential similarities in some of his statements to later concepts proposed by Freud. Threads linked to some psychoanalytic concepts may be traced also to Jean Fernel (1497-1558)[5] and to meaningful observations of Thomas Browne (1605-1682).[6,7]

I think the work of Franz Anton Mesmer (1734-1815) is a pertinent example of a precursor of present-day iatropsychology. Disregarding his theoretical propositions, there remains an extensive practice encompassing a broad range of medical problems to which he brought a basic psychotherapeutic technique, solely and consistently applied and firmly heralded. There is more to be appreciated in his historical significance than meets the eye initially.[8]

The iatropsychologist may have had earlier medical concerns of a different order. Freud was involved with neurology. Sylvius, the iatrochemist, was first a fine anatomist and attentive to the physiology of his day. "He was a declared mechanist."[1] Although it would be most convincing to illustrate iatrochemistry, iatrophysics and iatropsychology with physicians adhering to such systems to the extreme in theory and practice, such a demand is apparently not essential even to medical historians. Thus, Baglivi, selected as a representative iatrophysicist, was a dogmatist in theory but curiously free from such influence in clinical practice. However, Thomas Willis (1621-1675), considered by Ackerknecht[9] an iatrochemist and credited in the history of psychiatry with an early description of general paresis, approached mental illness in a way that has been characterized as psychiatry without psychology.[3] Herman Boerhaave (1668-1738) was interested in chemistry,[10] with the iatrochemical heritage of Sylvius at Leyden, yet he is believed to have been inclined toward iatrophysics, and as a clinician he practiced unencumbered by theory as did Baglivi. However, Boerhaave, unlike Baglivi, was not a theoretical dogmatist. A curious circle of interrelationships is completed when it is recalled how Boerhaave was impressed by Sydenham, and when it is noted how Sydenham in his awareness of the extent of psychological illness may be seen in a way as a precursor of today's iatropsychology. And Freud as iatropsychologist was capable of saying regarding "disturbances of the sexual processes, the processes which determine in the organism the formation and utilization of sexual libido" that "It is scarcely possible to avoid picturing these processes as being in the last resort of a chemical nature."[11] Van Helmont's life-giving principle "archeus" revives memories of Paracelsus. At the same time its controlling functions is a reminder of Mesmer's animal magnetism, suggests similarities to Freud's libido, and recalls William Cullen (1712-1790) and his "nerve force" principle.

These are the main eras of iatrochemistry and iatrophysics as recorded in medical history, with iatropsychology a newer development. In varying degree, suggestively or precisely, additional names and events reflecting these movements may be discerned in the evolution of medicine.

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Phenylpyruvic Oligophrenia

Report of a Case with Normal Intelligence

FERNANDO TAPIA, M.D.

When in 1934 Folling[1] identified and recorded in the literature the new disease entity now known as phenylpyruvic oligophrenia, he called it "imbecillitas phenylpyruvica." As history recalls, perhaps apocryphally, it was the peculiar odor noted about a pair of retarded siblings that prompted the experiments leading to the eventual discovery. Since that time several norms have been established for this condition. Afflicted cases have phenylaline serum levels between 20 and 60+ mg. %. (Normal = 1-2 mg. %.) Phenylketones spill in the urine, with variations, above a serum level of 8-10 mg. %. Renal thresholds are not well established. It has also been difficult to ascertain any correlation between phenylalanine serum levels and pathologic damage.

Following Jervis'[2] work the consensus was that most of these children were "imbeciles and the rest were idiots." Figures for the I.Q. of untreated cases are such that 98% are below 50 I.Q. and 84% below 30 I.Q. Generally, then, the results of the toxic elements which cause the organic damage are considered devastating. However, cases have been reported where the retained intellectual capacity was certainly better than imbecility. N. L. Low[3] reports two cases with apparently less retardation than usual. One was a fifty-year-old inmate of an institution who functioned adequately as a helper in the laundry. He had an I.Q. of 67. The other case was a 2½-year-old girl with an I.Q. of 82. Jervis[4] had a case with an I.Q. of 86. Cowie[5] reported a case with various I.Q. testings ranging from 76 to 97. Interestingly enough this case had dark brown pigmentation and seemed to have definite emotional difficulties because of extreme shyness and stubbornness. Another case with relatively high I.Q. is reported by D. Y. Y. Hsia,[6] a girl with 78 I.Q. Another girl, 8½ years old with an I.Q. of 80 is reported by S. A. Leonard.[7] A man found functioning as a presser is reported by Cohen and Kozinn.[8] This man was discovered only in a follow through after an offspring had been so diagnosed. Father's I.Q. was 69. Finally a case of a 12-year-old boy reported by Brugger[9] had an I.Q. reported at 85.

From St. Louis County Health Department, Clayton, Missouri.

Case Report

R.F. is an 8-year-old boy with dark blond hair but brown eyed like his parents. He was examined when his four-year-old sister was discovered positive phenylketonuria, I.Q. 38, and phenylalanine serum level of 45 mg. %. R.F. was in the second grade of the public school where he had been adjusting well. The only problems expressed by teachers were his slight difficulty in speech which was attributed to poor tongue coordination, some slowness in reading and "nervousness," mostly because of an almost constant activity of the arms.

Findings in R.F.'s case are essentially as follows: Appealing eight-year-old who immediately wanted to know if the psychiatric examiner was going to give him some medicine that would help him run faster because he was always "it" at tag games and could not manage to catch any of his playmates. He related well but showed a restlessness and a slight incoordination which gave him an air of jittery nervousness. He seemed of normal intelligence. Neurological examination revealed an ataxia and very mild choreoathetoid-like movements which could be from irritable restlessness and poor coordination.

Psychologicals: Full Scale I.Q. 91; Performance, 82, and Verbal 101. Psychologist felt that the Performance was impaired, in part, by his nervousness and motor difficulties, but that the intelligence was normal. Phenylalanine blood level was 28 mg. %. (Done by Dr. Marvin D. Armstrong of the Fels Research Institute in Yellow Springs, Ohio.)

Although eight years of age is definitely an advanced age for beginning a phenylalanine-restricted diet, the parents decided to try some form of restriction "at least for a while." They were also encouraged because R.F.'s young sister had thrived relatively well on her Lofenalac. After six months on a diet approximately 20% reduced of phenylalanine, some apparent improvement was noted by the parents, expressed by the child, and even mentioned by the teacher who, incidentally, was completely unaware of the changes in the diet. The

parents felt the boy was "less nervous and happier plus doing better all around." The child considers he can now run faster and is very happy with "the medicine," i.e. the diet. The teacher has noted sudden improvement in reading and especially in his handwriting.

All the above exceptions have caused concern with the name presently given the entity. Apparently not all cases are oligophrenic (few brains). Also the impression gathered is that this condition is not necessarily an all or nothing illness. The fact that the urine does not invariably test positive, and must be repeated, stems from the possibility that the diet preceding the test may have been low in phenylalanine or that there are moments of metabolic efficiency. One may also recall that not all PKU's are blond and blue eyed, some are darker as was our case and the case described by V. A. Cowie.[5] This implies, perhaps, some metabolic efficiency with the phenylalanine-tyrosine-melanin cycle. Nevertheless there are no substantial correlations between lack of pigmentation and degree of damage. One mulatto and no negroes have been reported affected with this condition; a hint, perhaps, that pigmentation and phenylketonuria are somewhat mutually exclusive. Of course, this contention must still face further proof. Different authors have also shown that there may be delays in the full development of chemical abnormalities.[10-12] This delay may account for some of the differences in extent of damage and eventual level of intelligence. Possibly, too, the basic intelligence potential of the individual may be a determining factor in the final outcome. Again, Hsia's case had a sibling who was top student in his class, while the above case comes from distinctly bright college graduate parents.

The probable significance of the above case, and some of the others alluded to is perhaps obvious. That there may be school children who are phenylketonurics, but essentially of normal intelligence remains a gnawing possibility that may have to be discounted before more dynamic aspects are considered in cases of "nervousness" or "learning blocks." Certainly there will not be many cases like R.F., but as long as it remains a possibility it is something that has to be taken into account by pediatricians as well as child psychiatrists.

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Psychiatry in Israel

LOUIS MILLER, M.D.*

It is reasonable to believe that the "psychiatry" developed in a country is colored by the culture of that country. By psychiatry I mean the ways in which the personality is formed, the resultant adult personality, its social relations, its deviations, the way in which these deviations are assessed, diagnosed and related to by society and the psychiatrist or those who profess skill in the matter of personal deviations.

In this respect psychiatry in Israel is different from that in other societies, cultures or countries. It does differ also in so far as our country has been very recently granted the right to a full individual identity and has in the last decade composed itself with rapidity from a wide range of varying communities with widely differing cultures. All these elements, on arrival, have been thrown into a process of change determined by pressures towards homogenization and towards a popular distribution of rights and responsibilities.

It should not be overlooked that under this movement towards cultural adjustment lies a hard and slowly changing base on which the state was founded. This core in Israel society is almost purely Western culturally, socialist politically and highly conscious of itself, its organization and its destiny. These features of Israel life will have an effect on Israel psychiatry which cannot be negligible.

It is to be expected, therefore, that the personality pictures encountered, the coloration of their deviation and the attitudes towards them, socially and in the matter of their care will still vary widely within the country. Together with this situation there will be certain other phenomena which affect our psychiatry. I will mention only a few:

a) The problems of personality and behavior which relate to migration.

b) Problems of personality which arise in situations of rapid cultural change.

c) In addition to our "official" or manifest psychiatry which is Western and European in its forms there exist "psychiatries" in our non-western groups of which we are only dimly aware.

d) The mainstream of basically Western, therapeutic psychiatry in Israel is highly tempered by concepts which spring from the mutualist and cooperative environment.

e) In addition to the settlement and development of people in Israel this is a country in construction. An incredible amount has already been done and is bearing fruit. Much remains to be done in the spheres of housing, industry and agriculture, schools, transport facilities and amenities. The resulting social difficulties have their bearing on human adjustment and rehabilitation in Israel.

f) In spite of changes in the international climate, Israel is still ringed by Arab hostility. A degree of this hostility is probably the result of an attempt by Arab leadership to divert the Arab people from the obvious community of interest they have with a progressive social entity, such as Israel really represents in the Middle East.

g) One should not omit to stress the very positive and almost therapeutic effect which the homecoming to Israel constitutes for many individuals and communities.

These are some of the cultural and social forces which make their special imprint on Israeli life and will have their effect on Israel psychiatry today.

Stemming from these influences, the problems which probably have the greatest significance for the nation as a whole are those which arise in the situation of speeded up cultural change. It seems that the personality is endangered to no slight degree in the process of change from the simply organized Oriental society to the complex and yet abstract society of the West. About a quarter of our population is undergoing this change at the moment. In this change personal and social risks are manifold. They include a tendency to unsatisfactory assimilation of new values and other modes of personal function. In the first generations this may show as a sort of dualism in the personality as it deals with reality. Later it manifests itself as an apparent superficiality and glibness. Varying rates of cultural change in the generations of the same family may lead to misunderstanding and actual conflict. There may be an inversion of functions and roles, as between father and son or husband and wife. On the broader social planes these personal and family events may show themselves in poor social attitudes, economic failure, delinquency and the concomitants of life in poverty in a city neighborhood.

These people from Middle Eastern and North African countries, brought with them a personality and social organization peculiar to their own culture. They brought with them methods of child rearing, attitudes, beliefs and relationships, including concepts of deviation and ways of dealing with these concepts. After ten years in Israel there has been not only partial change in personality and social organization which have

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Read at a point meeting of Eastern Psychiatric Research Assn. and Israeli Psychiatric Assn. held at Jerusalem, Israel.

their impact on the types of deviation found but also in the modes of dealing with them. In short the dualism in the personality is balanced by a dualism in the attitudes and practices relating to psychiatric care. It would not be surprising therefore to find that a great proportion of people may have simultaneous recourse to a type of psychiatry which is Oriental in its concepts and practitioners.

Western psychiatry in Israel stresses influence of the dominant Israeli culture and its cooperative spirit. It is undeniable that this spirit which created the collective of the agricultural life and the cooperative and mutual aid forms in the city has had a marked influence on the standards and practices of Israel psychiatry. Its marks are to be seen in the freedom and group quality of education, and the stress which is placed on the rights of children. In the rural collective this element is notably in the preschool age. In the city it manifests itself mainly in the region of puberty. Throughout life in Israel, group and collective effort tend to supplant individual striving. It finds expression in national organizations such as the army but varies and is balanced at times by militant individualism and sectarianism. This probably explains why an appreciable segment of Israeli psychiatry leans so heavily upon group and community activity for its therapy. Therapy often has a dominant note of group activity hall-marked by a great degree of autonomy of decision in the group and of mutual aid and self-rehabilitation. It tends to make of the psychiatric institution a colony of interdependent people intent on return to the community. It has also prepared the stage for attitudes of active social rehabilitation rather than passively accepted cures. In spite of the special difficulties outlined before, and the latent fears of the community of the psychotic in their midst, the social origins of Israel make the prospect fair, for a society actively engaged in the rehabilitation and support of its own dependent members.

Since its establishment at the time of statehood, our psychiatry has shown a definite trend toward State Psychiatry in the sense that the state considers itself responsible in the main for the mentally disturbed. Not that a most definite and commendable contribution is not being made by public and private agencies. Even to this very day, of the 5,000 mental hospital beds, only 2500 are in state hospitals. However, the state actually pays for the patients in 4,000 beds and pays a bed subsidy for a further 500. There are several factors of organization which further influence the type of psychiatry practiced in the country.

The Ministry of Health is charged with the responsibility for State Psychiatry and the supervision of mental care in the country. This is a separate and independent Ministry with representation in the cabinet. This is important in a country such as Israel where there are no state psychiatric services to speak of and where there is a real struggle to represent social and other priorities at the highest decision making level.

The Ministry of Health is responsible not only for psychiatry but simultaneously for mental health. The onus is on that Ministry to concern itself with the mental health of the growing child, the family, the neighborhood and the factory worker; in short for people in whatever situation or stage of life. The problems in mental health are as broad and as deep as human beings and their society, but this decision should allow effective integration of service and in the end may produce a professional worker with the broadest view and scope.

Psychiatric services are divided into three regions, one in each of three larger cities. Regional psychiatrists are empowered to hospitalize, supervise, report on the conduct of hospitals and so on. They have rights of entry in relation to a specific case or in an institution and may instruct the police arm to act. With decentralization of psychiatric decision and action, has come a decentralization of administration. The regional psychiatrist is today virtually responsible for the coordination of hospitalization in his region, conducting inter-regional negotiation, and the planning and supply of services in his region —to courts, probation officers, special schools and to the increasingly great number of public institutions which are coming to rely on the opinion and help of the community oriented psychiatrist.

The psychiatric tradition of Israel has given rise in each region to a set of interlocking institutions. For the years that have passed, years marked by the rise to statehood, uprooting, broken homes and communities and the arrival of great numbers of new people who had suffered intense physical, mental or social deprivation, this psychiatric system seems to have proved itself. Now that our population is in homes, and villages, on farms and factories, rather than in camps and ghettoes, the question of our future needs and the possibilities of meeting them will arise.

These are the psychiatric and mental health facilities in our regions:

a) The Adult Mental Health Centre and The Child Guidance Clinic.

b) The Night Hostel.

c) The Psychiatric Ward in General Hospital and Out-Patients.

d) The Special Psychiatric Hospital and Out-Patients.

e) The Work Village.

f) The Terminal Institution.

The mental health centers are today our installations closest to the community. This gives them

a favorable position for promotional work, therapy and long term follow-up of the psychotic. We believe that follow-up of the psychiatric case in the process of discharge from hospital, should be performed by the Out- Patient Department of that hospital. The nature of Israel's mental health needs has highlighted the inadequacy of the Child Guidance Clinic, and to some degree its adult counterpart, as mental health installations in the broader social sense. It is for this reason that we have decided to experiment with these forms in an attempt to produce a family and community mental health center. This center will not only serve the traditional needs but also promote work with groups such as those of the youth, parents, the aging and in addition, will try to spur community organization activity in certain neighborhoods. In this way psychiatric rehabilitation will benefit by the salutary effect such action has on community attitudes toward its deviant and handicapped members.

The development of the psychiatric ward in general hospitals while only now gathering momentum in the country is certainly making a real difference in the functioning of its sister-setting, the special psychiatric hospital. Cases whose destination would have been the mental hospital are now being checked by the early-treatment in the general hospital.

Mental hospital population in Israel has been kept to a reasonable size. This by virtue of the backing they have received from the Work Village. Now, in the light of the function of psychiatry in general hospital, the essential activity in mental hospitals is beginning to rely increasingly on the techniques of support and rehabilitation.

The Work Village, which is not over the 350 bed mark, has served well for the reeducation of the deteriorated and neglected patient. The response to the activating community life of the Work Village has often been startling. The question remains an open one whether, now that Israel has fostered the normal growth of families and neighborhoods for its immigrants the work colony will still be required to play such an essential role.

Before the advent of the Work Village, Israel's chronic and unregenerate patients languished in hastily established and often substandard privately owned institutions. For a time these flourished because of the shortage of beds and the nation's inability or unwillingness to face the cost of mental illness. Control over these hospitals has been tightened and they are being recast as terminal institutions linked to government hospitals.

In child psychiatry progress has indeed been made through special child psychiatric wards. Our major lack at the moment is probably in the age group of the post adolescents for whom there are no real facilities in the country. And of these the problem of the defective or organic and disturbed youth is the most painful.

What of the future? Like many countries of the West we are meeting minimal needs as we stand at the crossroads of change. We feel that we have gained as much as we are able from the present system—open, humane and social as it may be. There is still the impact of rising costs, of the loss of contact with the patient, an inadequate employment of social resources for therapy and rehabilitation and with these an increasing acceptance of our basic ignorance of mental process and severe deviation.

I feel that the pulse in Israel, which is gathering force, tends toward increasing care of the patient in the family through mobilization of resources not hitherto considered as directly psychiatric, such as the public health team, the community center, mental health center to mobilize these resources, direct their psychiatric activity and make them effective through training and supervision. Such practice will only be possible when the traditional psychiatric hospital is transformed itself into the day hospital or night hospital. These will be community institutions in a sense that we have not known before. The patient literally will not leave his normal social environment except for the shortest part of the twenty four hours. The activities in neighborhood and day hospital become interdependent, at the time of treatment and at the phase of aftercare or rehabilitation. This may have the welcome side-effect of strengthening the educational and general mental health impact of the mental health center. Under such circumstances we may expect a tightening of our grip on the problem of the seriously disturbed child from the inception of the diagnostic procedure through the years of follow-up and support of the family.

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